

**West Chicago Environmental Response
Trust**

**Final Completion Report – Route
59 Bridge Area**

Kress Creek/West Branch DuPage River Site

November 2013



Certification

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A handwritten signature in black ink, reading "Rick A. Copeland".

Rick Copeland
West Chicago Environmental Response Trust Project Manager

A handwritten signature in black ink, reading "Nathan A. Kernan".

Nathan A. Kernan
ARCADIS Project Manager

A handwritten signature in blue ink, reading "Mark O. Gravelding".

Mark O. Gravelding, P.E.
ARCADIS Project Officer

Final Completion Report – Route 59 Bridge Area

Kress Creek/West Branch
DuPage River Site

Prepared for:
West Chicago Environmental
Response Trust

Prepared by:
ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse
New York 13214-0066
Tel 315.446.9120
Fax 315.449.0017

Our Ref.:
B0071042

Date:
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Acronyms and Abbreviations

ACAR	Audit Corrective Action Report
BBL	Blasland, Bouck & Lee, Inc.
BOL	Bill of Lading
C	Coefficient of Conservatism
CAR	Corrective Action Report
CD	Federal Consent Decree between Kerr-McGee and the United States of America, State of Illinois
CFR	Code of Federal Regulations
CMRDP	Conceptual Mitigation and Restoration Design Plan
CQAP	Construction Quality Assurance Plan
FD/RA	Final Design/Remedial Action
FQI	Floristic Quality Index
GPS	Global Positioning System
HASP	Health and Safety Plan
IEMA/DNS	Illinois Emergency Management Agency/Division of Nuclear Safety
ICN	Interim Change Notice
LCCD	Local Communities Consent Decree
NCR	Non-Conformity Report
QAPP	Quality Assurance Project Plan
QA	quality assurance
QA/QC	Quality Assurance/Quality Control
RC _s	Relative Coverage by Species
REF	Rare Earths Facility
RF _s	Relative Frequency of Species
RIV _n	Relative Importance Value
RPM/OSC	Remedial Project Manager/On-Scene Coordinator
SOW	Statement of Work
STP	Sewage Treatment Plant
TMSP	Targeted Material Stabilization Plan
Tronox	Tronox LLC, formerly known and referred to as Kerr-McGee Chemical LLC [Kerr-McGee]
WCERT	West Chicago Environmental Response Trust, formerly known as Tronox
USEPA	United States Environmental Protection Agency
WBK	Wills, Burke, and Kelsey Associates

1. Introduction

This Final Completion Report has been prepared by ARCADIS U.S., Inc. (ARCADIS, formerly known as Blasland, Bouck & Lee, Inc.; engineering/design firm and BBL Environmental Services, Inc.; Remedial Contractor) on behalf of the West Chicago Environmental Response Trust (WCERT; who acquired environmental liability from Tronox LLC; formerly known as Kerr-McGee Chemical LLC on February 14, 2011), to summarize the remedial action, restoration, and mitigation activities performed in the Route 59 Bridge Area (located in Reaches 3B and 4), at the Kress Creek/West Branch DuPage River Site (Kress Creek Site) and the River Portion of the Sewage Treatment Plant Site (STP Site), collectively referred to as the Sites, located in DuPage County, Illinois. A plan for monitoring of the restored areas is also provided. A final summary of the results from the restoration/mitigation monitoring performed for the Route 59 Bridge Area will be submitted under separate cover (as described in Section 8.3).

1.1 Background

Historical operations at the West Chicago Rare Earths Facility (REF), where thorium and other elements were extracted from monazite sands, bastnasite, and other ores between 1932 and 1973, and the STP, which received debris and waste from the REF, resulted in the distribution of low level radioactive thorium residuals in portions of Kress Creek, the West Branch DuPage River, and their associated floodplains.

Extensive site characterization activities were performed to delineate areas at the Sites with radioactivity levels of thorium residuals (BBL, 2004). A site remedy (remedial action) was developed based on the site investigation findings and the baseline human health and ecological risk assessments performed by the United States Environmental Protection Agency (USEPA). The remedial action was designed to be consistent with the requirements set forth in 40 Code of Federal Regulations (CFR) Part 192 in implementing the Uranium Mill Tailings Radiation Control Act and the Illinois Source Material Milling Facility Licensing Regulations under Title 32 of the Illinois Administrative Code Part 332.

The selected remedial activities implemented at the Sites is based upon an extraordinarily extensive level of characterization activities and lengthy and detailed dialogue among WCERT, USEPA, and representatives of the Local Communities, including the City of West Chicago, West Chicago Park District, DuPage County, the Forest Preserve District of DuPage County (Forest Preserve), and the City of

Warrenville. This characterization effort defined the limits of excavation of targeted materials to assure protection of human health and the environment.

Specifically, the remedial activities in the Route 59 Bridge Area presented in this report were performed to achieve the performance standards and other requirements as specified in the Federal Consent Decree for the site including its appendices between Kerr-McGee and the United States of America, State of Illinois (CD; April 18, 2005), and the Kerr-McGee and the Local Communities Consent Decree (LCCD; March 23, 2005).

The remedial action activities for the Route 59 Bridge Area were performed in accordance with the *Conceptual Mitigation and Restoration Design Plan* (BBL, 2005a), *Common Scoping and Planning Documents for the Remedial Action at the Kress Creek/West Branch DuPage River Site and the River Portion of the Sewage Treatment Plant*, (Common Scoping and Planning Documents, BBL, 2005b), and *Final Design/Remedial Action Work Plan – Route 59 Bridge Area for the Kress Creek/West Branch DuPage River Site* (Route 59 Bridge Area FD/RA Work Plan, ARCADIS, September 2012).

1.2 Description for the Route 59 Bridge Area

The Route 59 Bridge Area is located within Reaches 3B and 4, and includes portions of excavation area Nos. R3B-23, R3B-25, R4-2 and R4-5 located directly adjacent to the bridge. This area was separated from the remainder of Reaches 3B and 4 as described in ICN 5 to the Reaches 3A, 3B, and 4 FD/RA Work Plan (ARCADIS, 2008) and work was completed in accordance with the Route 59 Bridge Area FD/RA Work Plan (ARCADIS, September 2012). Removal in this area is located along the riverbank, as well as in the floodplain, upland, and the roadway right-of-way. A total of approximately 1,095 cubic yards (cy) of materials (745 cy of overburden and 350 cy of targeted material) was anticipated to be removed from the Route 59 Bridge Area. A total of 1,368 cy of in-situ material (744 of overburden and 624 cy of targeted material) were removed between September 24, 2012 and October 8, 2012.

1.3 Performance Standards

The performance standards for the remedial action in the Route 59 Bridge Area are as follows:

1. Removal of Material to Pre-Determined Elevations

WCERT will remove targeted soils and sediment from the Sites to pre-determined Global Positioning System (GPS) survey points in accordance with the CD. The pre-determined points for the areas within the Route 59 Bridge Area are presented in the *Excavation Verification Plan*, which is included in Appendix A-2 of the Route 59 Bridge Area FD/RA Work Plan.

2. Restoration and Mitigation Activities

WCERT shall restore and mitigate impacted areas and perform monitoring and maintenance activities in accordance with the *Conceptual Mitigation and Restoration Design Plan* (BBL, 2005a), the *Area-Specific Restoration Plan*, which is included in Appendix B of the Route 59 Bridge Area FD/RA Work Plan, and as outlined in Section 2.1.6 of the Route 59 Bridge FD/RA Work Plan.

1.4 Report Organization

This report was prepared in accordance with the requirements specified in Section 4.3 Final Completion Report(s) of the CD (Appendix K), as well as Section 2.7 in the Route 59 Bridge Area FD/RA Work Plan. This report summarizes the remedial action construction and restoration activities performed within the Route 59 Bridge Area, and is divided into the following sections:

- Section 1 – Introduction
- Section 2 – Remedial Action Summary
- Section 3 – Design Deviations
- Section 4 – Quality Assurance and Quality Control
- Section 5 – Record Drawings
- Section 6 – Representative Project Photographs
- Section 7 – Records of Removal Quantities and Off-Site Waste Disposal

- Section 8 – Monitoring of Restoration/Mitigation Areas
- Section 9 – References

1.5 Document Control

All project records (Documents) required by the CD for the subject remedial action activities have been prepared and are maintained in the file room at WCERT's REF located in West Chicago, Illinois, in the custody of the Document Control Group. Records are periodically transferred to the WCERT's records management center in Oklahoma City, Oklahoma. Once the REF facilities have been decommissioned, WCERT will provide an offsite location for long-term storage, meeting the requirements of the CD.

A copy of WCERT's project file index can be found in Appendix A. These Documents shall remain on file in accordance with the CD pursuant to the requirements of USEPA. At the end of the required retention time, USEPA will be notified at least 90 days prior to document destruction and will be given the opportunity to assume custody of the Documents if requested.

1.6 Good Faith Estimate of Total Costs Incurred

WCERT estimates that the total cost for completing the remedial action for the Route 59 Bridge Area was \$1,509,765. This good faith cost estimate for the Route 59 Bridge Area is based on the primary remedial construction activities that occurred between September 2012 and November 2012.

2. Remedial Action Summary

This section summarizes the major tasks and presents a chronological description of major remedial action activities performed in the Route 59 Bridge Area.

2.1 General

In September 2003, Tronox retained ARCADIS to implement the remedial action at the Sites. The remedial action consisted of excavation of “targeted materials,” as defined in the CD, and site restoration. A series of verification points were established that defined the horizontal locations and vertical elevations of excavation limits. These predetermined verification points along with other remedial design criteria were adhered to during the remedial action to monitor the work performance. Any deviations from the design submittals are discussed in Section 3 of this report.

In addition to the Route 59 Bridge Area FD/RA Work Plan (ARCADIS, September 2012), a number of relevant project documents (and associated Interim Change Notices [ICNs]) were prepared and followed during the implementation of the remedial action construction, restoration, and monitoring. Below is a list of these documents:

- Conceptual Mitigation and Restoration Design Plan (BBL, 2005a)
- Common Scoping and Planning Documents (BBL, 2005b)
 - Document 200: Quality Assurance Project Plan (QAPP)
 - Document 300: Construction Quality Assurance Plan (CQAP)
 - Documents 400 and 401: Health and Safety Plans (HASPs)
 - Document 500: Emergency Contingency Plan
 - Document 600: Dust Control Plan
 - Document 700: Air Monitoring Plan
 - Document 800: Global Positioning System Verification Plan
 - Document 900: Targeted Material Stabilization Plan

2.2 Description of Remedial Action Activities

WCERT, through its own personnel and qualified contractors, completed the majority of the remedial action activities for Route 59 Bridge Area between September 2012 and November 2012. The remedial action activities consisted of five major tasks. These major tasks and a description of some typical activities performed under each task are as follows:

- Site Preparation – Activities performed prior to excavation, including utilities clearance and relocation, setup of temporary construction facilities, work force mobilization, installation of erosion and sedimentation controls, removal of asphalt surfaces in the excavation areas and installation of soldier pile and lagging for excavation protection.
- Overburden Removal and Verification – This includes excavation of overburden material, verification of excavation limits using survey grade GPS and Total Station Land Surveying Equipment, verification sampling of overburden material for disposal using gamma ray survey technology by a field health physics technician followed by composite soil sampling and analysis, and stockpiling of overburden for disposal.
- Excavation and Disposal of Targeted Materials – This includes removal of targeted materials to predetermined verification points, verification of excavation limits using survey grade GPS and Total Station Land Surveying Equipment, and direct loading or stockpiling/loading and transport of excavated targeted materials to WCERT's REF for subsequent off-site transportation (via rail) and disposal.
- Excavation Verification – This includes GPS survey verification of excavation depths in accordance with the GPS Verification Plan (Document 800), comparison of as-built excavation data to the verification points, preparation of GPS verification packages, and notification to USEPA, Illinois Emergency Management Agency/Division of Nuclear Safety (IEMA/DNS), USEPA remedial project manager/on-scene coordinator (RPM/OSC), and Local Communities Representatives of verification results.
- Restoration – Activities to restore the site for beneficial use including backfilling, topsoil placement and seeding, installation of erosion control measures, and asphalt pavement restoration.

2.3 Chronological Narrative of Remedial Activities Performed

A chronological narrative of the remedial action activities performed in the Route 59 Bridge Area is presented below.

Project Approvals

The following approvals were obtained prior to commencing excavation and restoration activities for the Route 59 Bridge Area:

- On August 7, 2012 and September 25, 2012, USEPA and Wills, Burke, Kelsey Associates (WBK), on behalf of the local communities approved the Route 59 Bridge Area FD/RA Work Plan, respectively.
- On September 13, 2012 IDOT issued the work permit for the Route 59 Bridge Area, which also granted approval of the Route 59 Bridge Area FD/RA Work Plan.
- Prior to use, the source of borrow soil to be used as backfill was identified and the potential borrow soil was tested to verify that it had met the project criteria for backfill. Testing results of borrow soil are kept on file at the WCERT's REF facility in West Chicago, Illinois.
- USEPA, IEMA/DNS, IEPA, Illinois Department of Natural Resources, and the Local Communities Representative were notified in advance of WCERT's intent to perform GPS Verification Survey on a weekly basis.

Remedial Action Activities

A chronological description for remedial activities performed at the Route 59 Bridge Area is presented below:

- The remedial activities in Route 59 Bridge Area were performed between September 2012 and October 2012 starting with the mobilization of the construction crew and equipment on September 17, 2012. The excavation areas were cleared and perimeter construction fencing, silt fencing and signage were installed. Prior to the start of construction activities, a pre-construction assessment of the Route 59 Bridge was performed. The results of that assessment are provided in Appendix J.

- Between September 24, 2012 and October 16, 2012, installation of soldier pile and lagging, removal of overburden and targeted material, and backfilling was performed in the Route 59 Bridge Area.
- During construction activities, portions of the Route 59 Bridge asphalt and the approach slab to the bridge were removed or damaged (i.e., cracked) by the installation of soldier piles. Structural steel within the approach slab was removed to facilitate installation of the soldier pile and lagging. Vibration monitoring was performed throughout construction activities. Results of the vibration monitoring are provided in Appendix J.
- Air quality was monitored during the excavation of overburden and targeted material. Resulting data were summarized each month in monthly progress reports that were distributed by WCERT to the regulatory agencies and Local Communities' Representative.
- Field verification of overburden and targeted material excavation limits was performed with survey grade GPS and Total Station Land Surveying Equipment to demonstrate that the performance standards for verification points were achieved; this information was summarized and distributed as the excavation work progressed. A list of the GPS survey data summaries is provided in Appendix B.
- During removal in excavation area 4-5, water column monitoring was performed upstream and downstream of the active remedial area to identify and respond to potential water column impacts, as excavation was required along the river bank. The monitoring data were compiled and summaries are provided in Appendix E.
- The trucking of the targeted material from the Route 59 Bridge Area to the REF started on September 24, 2012 and continued until October 8, 2012.
- Restoration of each excavation area started upon completion of excavation in individual areas. Restoration started on October 11, 2012 and was completed on November 7, 2012. Restoration activities included: installation of erosion control blanketing, hand seeding and restoration of asphalt pavement surfaces to match existing surfaces.

- During restoration, portions of asphalt pavement and the bridge approach slab that were removed or damaged during excavation activities, were restored per IDOT specifications. The sub-base for the asphalt and approach slab was backfilled and compacted prior to restoration. The structural steel in the bridge approach slab that was removed during the excavation activities was replaced with like materials prior to the placement of concrete. The asphalt that was removed from the shoulder and travel lane of the roadway was replaced and compacted to match the existing asphalt shoulder and roadway. IDOT provided an inspector that periodically observed the restoration activities and completed a final inspection of the restored asphalt surfaces prior to removing barricades and opening the affected lanes to traffic. A final post-construction assessment of the Route 59 Bridge was conducted following the completion of construction activities. The results of that assessment are provided in Appendix J.
- Starting October 6, 2012 and concluding October 9, 2012 railcars were loaded with targeted material from the Route 59 Bridge Area and subsequently shipped to Utah for disposal.
- Excavated soils and other materials (e.g., roots, tree stumps) containing targeted material were transported to the REF where they were managed under the IEMA/DNS Radioactive Material License #STA-583 and subsequently loaded on railcars and transported to the Energy Solutions Facility (State of Utah - 11e.(2) By Product Materials License #UT2300478) for final disposal. This was completed on October 23, 2012.
- On November 7, 2012 all planned remedial activities were concluded for the Route 59 Bridge Area 2012 season. This included the addition and final grading of topsoil, hand seeding of all disturbed areas, pavement restoration and removal of equipment.
- The Post-Construction Inspection Walk-Through for the Route 59 Bridge Area was conducted on October 31, 2012 by IDOT. IDOT provided punchlist items to be completed at the Route 59 Bridge Area on November 7, 2012. All punchlist items were completed by November 19, 2012.
- On December 6, 2012, IDOT performed an inspection of the paved areas on Route 59 Bridge and indicated that if the pavement does not settle over the winter, no additional milling and repaving work would be required.

- On February 15, 2013, the Notification of Successful GPS Verification Survey packages for the bottoms of overburden and targeted material for the Route 59 Bridge Area were distributed to the regulatory agencies and Local Community representatives, and are provided in Appendices C and D, respectively.
- IDOT performed an inspection of the Route 59 Bridge Area the week of April 22, 2013. During the inspection, IDOT identified several items related to erosion requiring repair. IDOT and WCERT met at the Route 59 Bridge on August 2, 2013 to discuss repair options. Final repairs at the Route 59 Bridge Area were completed in October 2013.

2.4 Backfill Materials

Imported backfill materials were used as backfill for site restoration in the Route 59 Bridge. A description of the imported backfill materials is presented below.

Imported Backfill Materials

Imported backfill materials were identified and tested prior to being imported to the Sites for use in accordance with Document 200 of the Common Scoping and Planning Documents and IDOT's specifications stated in the Route 59 Bridge FD/RA Work Plan. The imported material sampling data are provided in Appendix G. The source of the imported topsoil and river rock fill was Arthur J. Lootens and Son, Inc. facility, located at 0S551 Joliet Road, West Chicago, Illinois 60185. The source of the imported sand was LaFarge Aggregates Elburn facility, located at 1S194 Route 47, Elburn, Illinois 60119.

3. Design Deviations

This section describes any deviations from the design submittals associated with the Route 59 Bridge Area FD/RA Work Plan and the Common Scoping and Planning Documents during the implementation of the remedial action. Deviations are documented in three types of project documents, which include Non-Conformity Reports (NCRs), Corrective Action Reports (CARs), and ICNs. In addition, quality system audits are performed periodically by WCERT. Audit findings are documented as audit corrective action reports (ACARs), and the ACARs are classified as either a major or minor finding.

Non-Conformity Reports

A listing of the NCRs associated with the remedial action activities in the Route 59 Bridge Area is presented in Table 3-1. Copies of the NCRs are on file at the REF. In addition, a comprehensive tracking spreadsheet listing all the NCRs, CARs and ACARs for the entire project is presented in Table 3-2.

Corrective Action Reports

There were no CARs or ACARs issued for the remedial action activities performed in the Route 59 Bridge Area.

Interim Change Notices

There were two ICNs issued for the Route 59 Bridge Area remedial action activities. A brief summary is provided below.

- ICN No. 1 for the Route 59 Bridge Area was issued on October 23, 2012 to Document 100, Section 2.1.3 Excavation of Targeted Material, Drawings S-1 and S-5B states the extent of removal of the soldier pile and lagging system. The ICN also documents that IDOT requested that CA-6 be placed in the void observed under the existing approach slab during the removal of the approach slab, to the extent possible, in order for the new concrete approach slab to be poured, without slumping under the existing slab. This ICN was approved by USEPA and the Local Communities on April 4, 2013.
- ICN No. 2 for the Route 59 Bridge Area was issued on October 31, 2013 to Document 102, Excavation Verification Plan documents the deviation of

excavation boundary points from design elevations due to the presence of structural concrete wing walls and a concrete storm sewer outfall.

In addition to this area-specific ICN, twenty-two ICNs have been issued to update the Common Scoping and Planning Documents. These ICNs are summarized in Table 3-3 with the ICNs from all reaches.

Modifications to Original Design

There were instances where the Route 59 Bridge Area details were modified in the field to adjust field conditions or to adopt better construction practices. These modifications have been documented in the Record Drawings (Appendix H) to the extent they impact the actual limits of disturbance and represent a permanent condition. Examples of field modifications that were implemented include:

- The limits of disturbance were modified as necessary as field conditions (i.e., presence of the bridge wing walls) dictated.
- No trees were required to be planted after IDOT inspection of the trees to be removed during construction.

4. Quality Assurance and Quality Control

The remedial action was performed under the auspices of an internally managed quality assurance (QA) program that was expressed in the form of a Quality Assurance Manual, which follows the international standard ISO 9000. The Quality Assurance Project Plan (QAPP; Document 200 of the Common Scoping and Planning Documents) was prepared in accordance with this manual. The QAPP was also prepared in accordance with USEPA QAPP guidance documents, in particular, the Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80), and the Region V Model QAPP (1991).

The QAPP provided positive management control and included procedures and requirements to establish a record of conformance. This QAPP established standard operating procedures, change notices and field work instructions, and provided the operational and administrative requirements for the successful excavation and restoration of the Route 59 Bridge Area. Within this system, individual and organizational responsibilities were assigned for the activities and control measures necessary to achieve, verify, and document conformance. Adherence to this program, approved procedures, and regulatory compliance requirements were mandatory for all WCERT, ARCADIS, and ARCADIS subcontracted employees.

The key project Quality Assurance and Quality Control (QA/QC) elements associated with the remedial action at the Route 59 Bridge Area are as follows:

- Health and Safety – Work was performed consistently in a safe and healthy manner to protect site workers, residents from the surrounding community, and the environment by implementing best practices such as following HASP procedures, monitoring air quality, and controlling dust emission.
- Verification of Excavation Limits – Excavation limits for the overburden segregation and targeted material removal were verified with GPS Verification Survey and documented in the Notification of Successful GPS Verification Survey packages that were distributed to the regulators and are on file in WCERT's file room at the REF.
- Material Sampling - Overburden materials were sampled prior to disposal. Sources of borrow soil were tested before the soil was imported for site use. The documentation of the QA/QC testing is on file in WCERT's file room at the REF.

- Mitigation and Restoration Monitoring – Upon the completion of the remedial action, monitoring activities are carried out to evaluate the performance of the restored site. Performance standards were set such that adaptive management measures would be implemented should any deficiency be identified during the monitoring activities.

The results of the QA/QC activities are presented in appropriate project submittals or project files including GPS Verification Survey packages (Appendices C and D), Health and Safety records (on file), air monitoring and dust monitoring results (on file), sampling results of overburden and imported backfill materials (Appendices F and G), water column monitoring data (Appendix E), and annual reports summarizing the monitoring of performance standards for mitigation and restored areas (starting in 2013).

5. Record Drawings

The site final grading plan and other restoration elements associated with the Route 59 Bridge Area remedial action activities are documented in the construction Record Drawings provided in Appendix H.

The Record Drawings were developed to reflect post-remediation conditions using the reach-specific design drawings as a base. All temporary structures (e.g. staging areas, haul roads, pumps, etc.) were removed from the drawings, and post-restoration survey information was incorporated to document final conditions at the site. Certain design drawings were not developed into Record Drawings (e.g., pre-construction plan and profile drawings) because the drawing would present redundant information or information that would not reflect the current conditions at the site.

6. Representative Project Photographs

Photographic documentation for the Route 59 Bridge Area was performed during the performance of remedial action activities. Project photographs depicting the day's construction activities were included in the Quality Control Daily reports that were compiled by ARCADIS. All project photographs are kept on file in WCERT's file room at the REF, and representative project photographs for the Route 59 Bridge Area are provided in Appendix I.

7. Records of Removal Quantities and Off-Site Waste Disposal

During the remedial action for the Route 59 Bridge Area, two types of materials were removed, transported, and disposed off-site, which included:

- targeted material
- overburden material

Descriptions of these removed materials and their management are presented below. Records for material shipping and disposal, including truck shipment Bills of Lading (BOL) and waste manifests, are kept on file at WCERT's file room located at the REF, and are available for inspection.

7.1 Targeted Material

A total volume of approximately 624 loose cubic yards of targeted material from the Route 59 Bridge Area was excavated and transported by truck to the REF, based on the number of truckloads that were unloaded at the REF. Each truck was covered with a tarp and assigned a BOL, and traveled to the REF dump pad. The quantity records were based on the BOLs.

The material transported by truck to the REF consisted of targeted material and tarps and plastic liners used for the targeted material staging area. The soil at the dump pad was then moved to the REF direct load-out stockpile area where the stockpiles were managed under the IEMA/DNS Radioactive Material License #STA-583. As each stockpile was created, it was sampled to verify radiological characteristics and moisture content, and was subsequently loaded into weighed gondola railcars. The loaded railcars were then transported via train, to Energy Solutions' (formerly known as Envirocare of Utah Inc.) Clive Disposal Site (State of Utah - 11e. (2) By Product Materials License #UT2300478) for final disposal at:

Interstate 80, Exit 49
Clive, Utah 84029
Phone: (801) 532-1330

A total of approximately 1,113 tons of material generated from the Route 59 Bridge Area remedial action activities were shipped (via rail) and disposed of at Energy Solutions facility in Clive, Utah.

7.2 Overburden Material

During the excavation of the overburden material from the excavation areas in the Route 59 Bridge Area, the soil was transported to the REF staging area for gamma survey and sampling to demonstrate that the material could be disposed of at a Waste Management (WM) landfill. USEPA and IEMA/DNS representatives performed an independent survey of the materials prior to their disposal. Overburden testing and sampling results are on file at WCERT's REF and are included in Appendix F. There were approximately 744 cubic yards of overburden soils generated from the Route 59 Bridge Area that were transported and disposed of at WM's Laraway Landfill, 21233 West Laraway Road, Joliet, Illinois.

8. Monitoring of Restoration/Mitigation Area

8.1 Introduction

Previous sections of this report summarized the remedial and restoration activities performed in the Route 59 Bridge Area, and Record Drawings (Appendix H) were prepared to document the locations that the various seed mixes were applied.

The forthcoming *2013 Annual Monitoring Report* will contain the results of monitoring and maintenance activities conducted in the Route 59 Bridge Area to evaluate the health and progress of seeded vegetation, the stability of restored banks in the reach, and the development of upland and wetland habitats towards meeting vegetation performance standards.

Monitoring of the restored banks and habitats is required by the Statement of Work attached to the CD. The monitoring requirements are consistent with the methodologies presented in the *Conceptual Mitigation and Restoration Design Plan (CMRDP)* (BBL, 2005a) and the Route 59 Bridge Area FD/RA Work Plan, which were reviewed and approved by the USEPA and representatives of the Local Communities. The Post-Construction Inspection Walk-Through for the Route 59 Bridge Area was conducted with IDOT, WCERT, and ARCADIS on October 31, 2012.

Restored banks and vegetative communities will be monitored annually during the peak growing season (July/August) of each required monitoring year to evaluate stability and to collect quantitative vegetation data for comparison to performance standards. Additional vegetation monitoring events may be conducted in the spring and fall to identify early- and late-flowering species, respectively. Table 8-1 summarizes the site-specific monitoring activities and performance standards for the Route 59 Bridge Area. Each required year of vegetation monitoring will terminate at the completion of the summer or fall monitoring event conducted during the first complete growing season following restoration. The first year of bank monitoring will terminate with the completion of an inspection 10 to 14 months after their construction. Subsequent annual bank monitoring events will occur 10 to 14 months after the previous monitoring event.

Qualitative inspections of restored areas, consisting of visual inspection of restored banks and habitats in the Route 59 Bridge Area, may occur throughout the year to evaluate stability and vegetation status and to determine if any maintenance activities are required to meet performance standards. Observations made during qualitative

inspections will be photo documented as field conditions permit (e.g., low enough water levels to observe banks). Activities to be conducted during the spring and summer monitoring event are described below.

8.2 Spring Inspection

Qualitative inspections of restored areas, consisting of visual inspection of restored banks and habitats in the Route 59 Bridge Area, may occur throughout the year to evaluate stability and vegetation status and to determine if any maintenance activities are required to meet performance standards. Specific activities to be conducted during the spring monitoring event are described below.

8.2.1 Bank Inspection

Bank stability monitoring is required to be performed for three years, with at least one event occurring after a storm that equals or exceeds the bankfull (approximately a 2-year recurrence frequency) discharge of 512 cubic feet per second (cfs) (*Conceptual Design Report*; BBL, 2002). During bank inspection, restored banks will be inspected for signs of erosion that would jeopardize the integrity of the bank. The limits of a “bank” extend from the toe of slope to the first observable break in slope. Signs of significant erosion include toe erosion causing undercutting, lateral erosion above the rock protection, exposed geotextile fabric, or vertical erosion down the face of the bank from overland flow entering the river. Stability will be evaluated by visual observation and comparison to design drawings, considering location in the stream, physical dimensions, and designed hydraulics. Bank areas found to be significantly eroding will be repaired in accordance with a maintenance activity design report that will be generated prior to the initiation of any major maintenance activity. Bank monitoring may alternatively be performed in the fall, if water levels are too high for bank inspections in the spring.

8.2.2 Photo Documentation

Photographs will be taken of restored banks to document observed conditions before visibility is hindered by mature vegetation. Photographs with captions describing the location and direction of photograph will be provided in a photo log attachment to the Annual Monitoring Report.

8.3 Summer Monitoring Event

The status of the restored vegetative communities and habitats of the Route 59 Bridge Area will be evaluated during the summer inspection with regard to their ability to meet specific performance standards. The quantitative summer inspection will occur in July or August and will consist of herbaceous vegetation data collection, assessment of the health of planted trees and shrubs, and photo-documenting the development of restored areas over time. Table 8-1 summarizes the data collection requirements and performance standards for the quantitative monitoring efforts. Details of the components of the summer monitoring effort are provided in the following sections.

8.3.1 Herbaceous Vegetation Monitoring

The vegetation habitats will be monitored to document the progress of the vegetation development towards the vegetation performance standards of 85% ground cover in uplands, less than 15% cover by invasive species in restored bank areas, and less than 5% invasive species in uplands (Table 8-1). Invasive species include, but are not limited to: annual blue grass (*Poa compressa*); Kentucky blue grass (*Poa pratensis*); common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Rhamnus frangula*); smooth brome (*Bromus inermis*); tall fescue (*Festuca elator*); quack grass (*Agropyron repens*); honeysuckle (*Lonicera spp.*); and reed canary grass (*Phalaris arundinacea*); cattail (*Typha spp.*); common reed (*Phragmites australis*); purple loosestrife (*Lythrum salicaria*); sandbar willow (*Salix interior*); barnyard grass (*Echinochloa crusgalli*).

Monitoring of herbaceous vegetation will utilize 1-square meter sample plots located randomly in restored vegetation areas. The numbers of plots that will be utilized in each restoration area are presented in Table 8-1. The random plot locations will be identified prior to entering the field using a random number generating program to select gridline intersections of a grid superimposed over the site. In the field, data collected from each plot will consist of the visually estimated percent ground cover, the identification of all plant species present in the plot, and the visually estimated percent cover of each species in the plot. In the instance that an unknown species is encountered in a restored area, a representative specimen of the species will be collected for identification by Forest Preserve staff or brought to the Morton Arboretum for identification. The percent ground cover of a restoration area will be represented by the average percent cover values observed in all plots in that restoration area. The average percent ground cover will be compared to the site-specific performance standard presented in Table 8-1 to determine if the performance standard is met or if repairs are required to meet the performance standard by the third growing season.

Corrective actions will be performed in accordance with a maintenance activity design report that will be generated prior to the initiation of any major maintenance activity or repair.

8.3.2 Photo Documentation

Photographs will be taken of restored areas to document observations and to provide a record of vegetation development over time. Permanent photograph locations will be established in the field that provide a general overview of each restored bank and vegetative community. A labeled wooden stake will be installed at each photo location and its location will be instrument surveyed so it can be reproduced for subsequent monitoring events if the stake is removed or lost. Photographs with captions describing the location and direction of photograph will be provided in a photo log attachment to the Annual Monitoring Report.

8.4 Fall Meander Survey

If required, fall flowering vegetation will be identified and surveyed in the restored habitats during the fall inspection to assist in developing vegetation metrics that are required to evaluate vegetation development. A meander survey will be performed in each restored habitat that will include the identification of all species of herbaceous vegetation that can only be identified in the fall when they are flowering. The fall meander survey will not be required if the summer monitoring activities are conducted late enough in the growing season to include fall flowering species.

8.5 Report Preparation

An Annual Monitoring Report will be prepared each year of the required monitoring period. The first Annual Monitoring Report that will address the Route 59 Bridge Area will be issued in December 2013. This monitoring report will summarize the observations during the field monitoring activities, present data tables with the required vegetation metrics calculations, and provide photographs of restored areas from permanent locations to document the temporal development of vegetation.

If the restoration performance standards presented above are not achieved in the Route 59 Bridge Area within three years of the completion of restoration, appropriate corrective restoration measures will be performed in accordance with a maintenance activity report that will be generated prior to the initiation of any major maintenance activity. If the restoration monitoring standards presented above are achieved in the

Route 59 Bridge Area their required monitoring period, the restoration will be deemed successful and no further maintenance or monitoring will be required or performed.

9. References

ARCADIS. 2008. *Final Completion Report – Reaches 3A, 3B, and 4*. Kress Creek/West Branch DuPage River Site and the River Portion of the Sewage Treatment Plant Site, DuPage County, IL.

ARCADIS 2012. Final Design/Remedial Action Work Plan – Route 59 Bridge Area for the Kress Creek/West Branch DuPage River Site, September 2012.

BBL. 2002. *Conceptual Design Report* – Kress Creek/West Branch DuPage River. DuPage County, IL. 2002.

BBL, 2004. Remedial Investigation Report - Kress Creek/West Branch DuPage River and Sewage Treatment Plant Sites, Dupage County, IL, 2004.

BBL, 2005a. Conceptual Mitigation and Restoration Design Plan, February 2005.

BBL, 2005b. Common Scoping and Planning Documents for the Remedial Action at the Kress Creek/West Branch DuPage River Site and the River Portion of the Sewage Treatment Plant Site, May 2005.

Swink, F. and G. Wilhelm. 1994. *Plants of the Chicago Region*. 4th Edition. Indianapolis: Indiana Academy of Science, 1994.

Tables

Table 3-1
Kress Creek/West Branch DuPage River Site
Final Completion Report - Route 59 Bridge Area
West Chicago Environmental Response Trust
DuPage County, Illinois

Listing of Corrective Action Reports (CARs), Audit Corrective Action Reports (ACARS) and Non-Conformity Reports (NCRs) - Route 59 Bridge Area

Issued in 2012						
NCRs	Date	Description	Root Cause	Initiator	Correction	Status
NCR KC/WB-2012-010	10/5/12	During excavation of Removal Area R3B-23, for remediation of the Rte.59 Bridge Area, Boundry points T87, T91, T94 and drillhole 470lt were not re-surveyed prior to excavation as specified in the Excavation Verification Plan for the Final Design/Remedial Action Work Plan - Rte.59 Bridge (Reaches 3B and 4)	Procedure Deviation	ARCADIS	Verification points T87, T91, T94 and drillhole 470lt, surveyed during Reaches 3A, 3B and 4 remedial activities, will be included in the final GPS verification package for the Rte.59 Completion Report.	Closed

Table 3-2
Kress Creek/West Branch DuPage River Site
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DuPage County, Illinois

Total Project Tracking Spreadsheet for All Corrective Action Reports (CARs), Audit Corrective Action Reports (ACARs) and Non-Conformity Reports (NCRs)

Issued in 2005						
CARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
KC-05-001	Reach 1	9/23/2005	IEMA	IEMA field observations in Reach 1 regarding safety requirements	9/27/2005	
Major ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
05-VA-04-01	Reaches 1 & 2	10/21/2005	Tronox	Project training requirements and documentation	4/11/2006	
05-VA-06-01	Reaches 1 & 2	12/2/2005	Tronox	Need to adopt railcar loading operational procedures	4/11/2006	
05-VA-06-02	Reaches 1 & 2	12/2/2005	Tronox	Need to develop targeted material stabilization/mixing procedures	4/11/2006	
Minor ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
05-VA-04-02	Reaches 1 & 2	10/21/2005	Tronox	Training materials did not have supervisor approval signature	4/11/2006	
05-VA-04-03	Reaches 1 & 2	10/21/2005	Tronox	No test records onsite for DOT and Radworker training	4/11/2006	
05-VA-04-04	Reach 5A	10/21/2005	Tronox	Reading assignments and work instructions not signed by supervisor	4/11/2006	
05-VA-04-05	Reaches 1 & 2	10/21/2005	Tronox	Map in Overburden Verification Package KC-027A did not label three points	4/11/2006	Pertained to and addressed in Reach 5A Final Completion Report.
05-VA-04-06	Reaches 1 & 2	10/21/2005	Tronox	Deviations from WCP 372 regarding background and efficiency checks	4/11/2006	
05-VA-04-07	Reaches 1 & 2	10/21/2005	Tronox	Log book for water column monitoring did not address >50 NTU delta on 09/14/05	4/11/2006	
05-VA-04-08	Reaches 1 & 2	10/21/2005	Tronox	Maps/tables in GPS verification tables showed tolerance of 0.24', not 0.25'	4/11/2006	
05-VA-04-09	Reaches 1 & 2	10/21/2005	Tronox	Validation and calibration checks were not documented in field log books	4/11/2006	
05-VA-04-10	Reaches 1 & 2	10/21/2005	Tronox	GPS surveyors did not have documented training and reading assignments	4/11/2006	
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
BBLES 2005-001	Reaches 1 & 2	11/7/2005	ARCADIS	Deficiency in health and safety incident reporting and documentation	11/7/2005	
BBLES 2005-002	Reach 1	4/13/2006	ARCADIS	Did not survey ground surface for two overburden points prior to excavating overburden and targeted material in one excavation event	4/13/2006	
ISSUED IN 2006						
CARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
WB-2006-001	Reach 5B	9/11/2006	ARCADIS	GPS survey data for overburden point R5B-9-79571 was not recorded	9/22/2006	
Major ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
KC-06-VA-04-01	Reach 5A	11/10/2006	Tronox	Post-Construction Inspection Report was not issued within 14 days of the inspection for Reach 5A	12/14/2006	Report issued on 12/13/06.
Minor ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
KC-06-VA-04-02	Reaches 3A, 3B and 4	11/10/2006	Tronox	After review, compaction testing was not required for non-structural fill	12/14/2006	
KC-06-VA-04-03	Reaches 3A, 3B and 4	11/10/2006	Tronox	No safety or training records were onsite for McGinty Bros. workers (landscapers)	12/14/2006	
KC-06-VA-04-04	Reaches 3A, 3B and 4	11/10/2006	Tronox	Need to review and revise seed mixture submittal requirements	5/8/2007	Section 02420 was revised by ICN No. 10 to Common Scoping Documents.
KC-06-VA-04-05	Reaches 3A, 3B and 4	11/10/2006	Tronox	Seed mix submittals are required two weeks prior to planting	12/14/2006	
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
BBLES 2006-001	Reach 3A	4/27/2006	ARCADIS	Turbidity curtain should have been installed in Reach 3A prior to beginning excavation of bypass sump in the creek, and water column monitoring should have been initiated	5/2/2006	
BBLES 2006-002	Reaches 3A, 3B and 4	5/28/2006	ARCADIS	Derailer at RLF was left locked, preventing pickup of railcars	6/1/2006	
BBLES 2006-003	Reach 3A	6/7/2006	ARCADIS	Released an exclusive use vehicle for repairs prior to final rad survey	6/15/2006	
BBLES 2006-004	Reach 3B	6/14/2006	ARCADIS	Construction equipment created ruts in targeted material area	6/15/2006	

Table 3-2
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Total Project Tracking Spreadsheet for All Corrective Action Reports (CARs), Audit Corrective Action Reports (ACARs) and Non-Conformity Reports (NCRs)

ISSUED IN 2007						
CARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
WB-2007-001	Reaches 5C & 5D	5/1/2007	ARCADIS	Surveyors were using a database for GPS verification points that was outdated	5/4/2007	
WB-2007-002	Reach 5E	10/3/2007	ARCADIS	ARCADIS' surveying subcontractor surveyed but did not record overburden verification final elevation for Point R5E-6-T153. Adjacent points were properly recorded and overburden pile was scanned and met backfill criteria	10/4/2007	
Major ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
07-VA-04-01	Reaches 5E and 6	9/20/2007	Tronox	The complete Restoration Mitigation Project Team (identifying the surveying and landscaping subcontractors) was not shown on the organizational chart in the draft FD/RA Work Plan for Reach 5E and 6 and previous work plans	10/22/2007	Organizational chart was expanded to include subcontractors.
07-VA-04-02	Reaches 5C & 5D	9/20/2007	Tronox	A detailed project restoration schedule was not provided to Tronox	10/22/2007	
07-VA-04-03	Restoration Monitoring in Reaches 1, 2, 3A and 5A	9/20/2007	Tronox	Performance monitoring activities in Reaches 1, 2, 3A and 5A were initiated without final as-built drawings being approved and issued	1/28/2008	
07-VA-04-04	Restoration Monitoring in all reaches	9/20/2007	Tronox	FD/RA Section 2.6 (Data Management) does not include Restoration & Mitigation activities	4/9/2008	In Annual Monitoring Reports, summary tables and record drawings are coordinated, and will be the basis for ongoing restoration monitoring.
Minor ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
				None		
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
KC-2007-001	Reach 5C & 5D	10/16/2007	Tronox	24 railcars were loaded and shipped over a period of 3 shipments (09/26/07 - 13 railcars, 10/04/07 - 6 railcars, and 10/09/07 - 5 railcars) using the wrong lot number	11/14/2007	
BBLES 2007-001	Reach 5C	6/4/2007	ARCADIS	Health physics technician failed to properly document radiological surveys for loadout of Truck Shipment Nos. 28, 30 and 34 from Reach 5C	6/5/2007	
ISSUED IN 2008						
CARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
KC/WB-2008-001	Reaches 1, 2, 3A, 3B, 4	5/14/2008	ARCADIS	Initial tree tag survey was not updated to reflect actual accounting of disturbed trees in Reaches 1, 2, 3A, 3B and 4	11/7/2008	ICN No. 11 to the Common Scoping Documents added SOP 230-Tree Tagging and Tracking
KC/WB-2008-002	Reach 1	5/16/2008	ARCADIS	File references and originating drawing references for Reach 1 Record Drawing B-13 Final Grading Plan had inconsistencies	8/7/2008	
KC/WB-2008-003	Reach 6	11/6/2008	ARCADIS	Six railcars loaded at the REF with targeted material from Reach 6 were observed leaking and ultimately had to be unloaded, targeted material stabilized with lime at the REF, and then when it had properly dried was reloaded into the railcars	12/12/2008	
Major ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
				None		
Minor ACARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
08-VA-04-01	Reach 5B restoration monitoring	9/4/2008	Tronox	Drawings used for Reach 5B restoration monitoring were not on Tronox document library website	10/30/2008	
08-VA-04-02	Reach 5C	9/4/2008	Tronox	Drawings used for planting and seeding activities in Reach 5C were not the approved drawings on the Tronox document library website	10/30/2008	Field drawings were "blown up" drawings for easier reading and note taking. ARCADIS restoration manager will note on the oversized drawings "OK for monitoring use".
08-VA-04-03	Reaches 5C, 5D and 5E	9/4/2008	Tronox	No evidence of owner approved planting plans for Forest Preserve properties	10/30/2008	Forest Preserve planting plans for Reaches 5C, 5D and 5E were posted on Tronox library website.

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NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
NCR KC/WB-2008-001	Reaches 1, 2, 3A, 3B, 4.5A, 5B and 5C	5/19/2008	ARCADIS	Seed mixes used in restoration did not exactly match seed mixes in Work Plans	8/12/2008	Supplied seed mixes were re-reviewed and approved.
NCR KC/WB-2008-002	Reach 5B	5/28/2008	ARCADIS	Additional surveying was required to characterize the pools, and hummocks and hollows for the Reach 5B record drawings	5/30/2008	
NCR KC/WB-2008-003	Reach 6	5/30/2008	ARCADIS	JULIE was not contacted prior to excavation in Excavation Area Nos. R6-1 and R6-2	6/2/2008	JULIE Dig Log was created to provide two week plan for upcoming digs.
NCR KC/WB-2008-004	Reach 6	6/17/2008	ARCADIS	Discrepancy found in bottom verification elevations for Points B3 and B6 in Excavation Area No. R6-20 in Verification Drawings R and S	6/17/2008	Excavations were dug to lowest elevation shown, drawings were revised.
NCR KC/WB-2008-005	Reach 5E	6/30/2008	ARCADIS	Work was slightly postponed while air monitor for confined space entry in Wetland 2 (storm manhole) in Reach 5E was calibrated	6/30/2008	
NCR KC/WB-2008-006	SMSB Demolition	6/30/2008	ARCADIS	A scrap metal box filled with cleaned material from the Stabilized Material Storage Building (SMSB) demolition was removed from the REF before the smear samples analyses were available. One hour later the smear analyses showed the materials were clean.	6/30/2008	
NCR KC/WB-2008-007	SMSB Demolition	7/1/2008	ARCADIS	Site and task specific training pertaining to demolition was not conducted prior to the start of SMSB demolition	7/1/2008	
NCR KC/WB-2008-008	Reaches 5E & 6	7/1/2008	ARCADIS	Loader to be used at the REF was ordered for delivery on June 30, 2008, but vendor did not deliver loader until July 1, 2008	7/1/2008	
NCR KC/WB-2008-009	Reach 6	7/16/2008	ARCADIS	Overexcavation of Point R6-7-12346t by 0.15'. The area where truckload was dumped was scanned and cleared, and overburden scanning and sampling was within acceptable limits	7/16/2008	Area had several large rocks and construction debris at OB/TM interface.
NCR KC/WB-2008-010	Reach 6	7/16/2008	ARCADIS	Railcar needed an additional strap due to insufficient clamp-to-railcar contact	7/22/2008	
NCR KC/WB-2008-011	Reaches 5E and 6	7/18/2008	ARCADIS	Railcar needed an additional strap due to insufficient clamp-to-railcar contact	7/22/2008	
NCR KC/WB-2008-012	Reaches 5C & 5D	7/23/2008	ARCADIS	Shipment of Reach 5C and 5D targeted material was delayed awaiting placards	7/23/2008	Shipment got delayed one day.
NCR KC/WB-2008-013	Reaches 5C & 5D	8/4/2008	ARCADIS	The proposed planting plan for Reach 5C & 5D showed plant plug species that were not listed in the approved table	9/2/2008	
NCR KC/WB-2008-014	Reaches 5E & 6	8/8/2009	ARCADIS	Data from the downwind Dust Trak monitoring lime stabilization of targeted material could not be retrieved on 08/08/08	8/18/2008	The downwind Dust Trak did not show any elevated readings for the entire day.
NCR KC/WB-2008-015	Reaches 5E & 6	8/19/2008	ARCADIS	On 08/19/08 Ludlum Model 3 survey meter with a Ludlum 44-40 beta gamma detector was found to be past the calibration date of 08/14/08.	8/27/2008	Unit was not used for beta survey on 08/19/08 and was taken out of service until it was calibrated.
NCR KC/WB-2008-016	Reaches 5E & 6	10/27/2008	ARCADIS	Wrong railcar number was recorded on inspection form. Error was caught and corrected when filling out the loading sheet	10/28/2008	
NCR KC/WB-2008-017	Reach 5C	10/28/2008	ARCADIS	When final planting survey for Reach 5C was forwarded to ARCADIS for preparation of record drawings, it was found that the format was not fully usable for the AutoCAD software and additional conversions were required	11/17/2008	
ISSUED IN 2010						
CARs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
REF 2010-001	Reach 7	9/29/2010	Tronox	Three leaking railcars observed upon arrival at disposal site in Clive, Utah. CAP issued to Tronox on 10/29/2010, which included more lime mixing, longer mixing times, and using poly liners in railcars. Tronox issued CAP to IEMA on 11/01/2010. IEMA approved resumption of railcar shipments on 11/03/2010.	Ongoing	Resolving upper moisture content limit
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
NCR KC/WB-2010-001	Reach 7	07/01/2010	ARCADIS	Failure to locate utility	7/20/2010	JULIE field response and utility investigation determined the line to be abandoned in place. No further action required.
NCR KC/WB-2010-002	Reach 7	07/10/2010	ARCADIS	Overburden was targeted material	8/2/2010	Procedure was reviewed. Expected targeted material design flaw. No further action required.
NCR KC/WB-2010-003	Reach 7	07/12/2010	ARCADIS	Utility was damaged during installation of sheetpile.	8/23/2010	JULIE field response. Utility was marked. Damaged line was temporarily rerouted to avoid further disturbance. Procedures were reviewed with field staff.
NCR KC/WB-2010-004	Reach 7	07/14/2010	ARCADIS	Peristaltic pump was not functional prior to water column sampling activities.	7/23/2010	Functional peristaltic pump was ordered and received. Peristaltic pump will be periodically tested for functionality.

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NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
NCR KC/WB-2010-005	Reach 7	07/20/2010	ARCADIS	Railroad track repair subcontractor did not have prerequisite training prior to work activities.	9/7/2010	All applicable training documentation will be required prior to permitting subcontractors to conduct work on site. Training will be verified for subcontractor in question.
NCR KC/WB-2010-006	Reach 7	08/12/10	ARCADIS	Targeted material was eroded during flooding.	8/24/2010	Documented and reported to necessary parties. Excavation and verification of washout area via GPS verification and gamma scan of removed material.
NCR KC/WB-2010-007	Reach 7	08/23/10	ARCADIS	A Work Air Monitor (WAM) was located in an upwind position from the material handling area.	8/24/2010	The HPT stationed at the area and the RSO were informed. All HPTs were briefed on the Air Monitoring SOP 212. The existence of wind direction flags was verified.
NCR KC/WB-2010-008	Reach 7	8/27/10	ARCADIS	Overburden material was improperly gamma surveyed.	9/3/2010	Procedure was reviewed with the HP technician and On the Job Training (OTJ) was conducted.
NCR KC/WB-2010-009	Reach 7	9/10/10	ARCADIS	Unsuitable overburden material was not segregated as targeted material.	9/14/2010	Unsuitable material was segregated as targeted material. Procedure was reviewed with the HP technician and OJT was conducted. All techs were instructed to record cpm ranges in logbooks.
NCR KC/WB-2010-010	Reach 7	11/1/10	ARCADIS	The WAMs located in the TM Stabilization Pad were not running because they had run out of fuel.	11/3/2010	The HPT stationed at the area and the RSO were informed. HPTs were instructed to check and record hourly that all air monitors in their work area are functional.
NCR KC/WB-2010-011	Reach 7	11/5/10	ARCADIS	Overburden material was sampled prior to gamma survey.	11/9/2010	The material of elevated activity was removed as targeted material. The area was re-sampled. Procedure was reviewed with the SES employee conducting the Overburden soil sampling.
ISSUED IN 2011						
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
NCR KC/WB-2011-001	Reach 7	1/16/11	ARCADIS	The gate and derailleurs on the railspur of the RLF were left unlocked by CN.	9/7/2011	Gates and derailleurs were locked. Disposal contractor and railcrews were contacted and notification sent to all associated parties.
NCR KC/WB-2011-002	Reach 7	1/28/11	ARCADIS	One WAM located in the TM Stabilization Pad was not running because it had run out of fuel.	2/21/2011	The HPT stationed at the area and the RSO were informed. HPTs were instructed to check and record hourly that all air monitors in their work area are functional and generators are sufficiently fueled.
ISSUED IN 2012						
NCRs	Reach	Date Issued	Initiator	Description	Resolution Date	Comment
NCR KC/WB-2012-001	Reach 8	5/16/12	ARCADIS	DO sensor was not functional; DO parameter was not recorded during water quality measurements.	5/16/12	Closed
NCR KC/WB-2012-002	Reach 8	5/31/12	ARCADIS	Temporary water filtration not designated as Exclusion Zone.	5/31/12	Closed
NCR KC/WB-2012-003	Reach 8	6/14/12	ARCADIS	The alternate channel was not excavated to the designed elevations.	6/14/12	Closed

Table 3-2
Kress Creek/West Branch DuPage River Site
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Total Project Tracking Spreadsheet for All Corrective Action Reports (CARs), Audit Corrective Action Reports (ACARs) and Non-Conformity Reports (NCRs)

NCR KC/WB-2012-004	Reach 8	6/20/12	ARCADIS	Targeted material was not segregated from overburden due to equipment shield malfunction.	6/20/12	Closed
NCR KC/WB-2012-005	Reach 8	6/30/12	ARCADIS	Two points not included on distributed verification tables.	6/30/12	Closed
NCR KC/WB-2012-006	Reach 8	7/3/12	ARCADIS	Radiological procedures were not followed for work air monitoring, placarding of an exclusion zone, or overburden segregation.	7/3/12	Closed
NCR KC/WB-2012-007	Reach 8	7/3/12	ARCADIS	No silt fence was installed along remediated R8-27 on river edge.	7/3/12	Closed
NCR KC/WB-2012-008	Reach 8	7/3/12	ARCADIS	Health physics technician was intentionally interfering with gamma survey readings to obtain lower gamma readings.	7/3/12	Closed
NCR KC/WB-2012-009	Reach 8	8/14/12	ARCADIS	Oversized stumps loaded onto rail cars to Energy Solution without authorization.	8/14/12	Void (please see CAR-KC/WB-2012-001)
NCR KC/WB-2012-010	Route 59 Bridge Area	10/5/12	ARCADIS	During excavation of Removal Area R3B-23, for remediation of the Rte.59 Bridge Area, Boundry points T87, T91, T94 and drillhole 470lt were not re-surveyed prior to excavation as specified in the Excavation Verification Plan for the Final Design/Remedial Action Work Plan - Rte.59 Bridge (Reaches 3B and 4)	10/5/12	Closed

Note:

1. No CARs, ACARs, or NCRs issued in 2009.

Table 3-3
Kress Creek/West Branch DuPage River Site
Final Completion Report - Route 59 Bridge Area
West Chicago Environmental Response Trust
DuPage County, Illinois

Summary of Interim Change Notices (ICNs)

ICN No.	Referenced Document	Description of Change	Date Issued	Date Approved/Acknowledged by Regulators
Final Design / Remedial Action Work Plan - Reach 1				
1	106, Appendix E	Changing to a single bypass sump using Pool No. 7	E-Mailed on 11/1/2005, hard copies issued on 3/24/06	USEPA and CBB West 11/2/05
2	102, Figure A and Tables	Revised boundary points at May St. culvert, and clarification of redundant boundary points in Reach 1 & 2.	E-Mailed on 11/3/2005, hard copies issued on 3/24/06	USEPA 11/4/05, CBB West 11/3/05
Final Design / Remedial Action Work Plan - Reach 2				
1	106, Appendix E	Changing to a single bypass sump using Pool No. 7	E-Mailed on 11/2/2005, hard copies issued on 3/24/06	USEPA 11/4/05, CBB West 11/01/06
2	102, Figure A and Tables	Revised boundary points at May St. culvert, and clarification of redundant boundary points in Reach 1 & 2.	E-Mailed on 11/3/2005, hard copies issued on 3/24/06	USEPA 11/4/2005, CBB West 11/3/05
Final Design / Remedial Action Work Plan - Reach 3A, 3B and 4				
1	Volume 1, Figure 2-1	Revisions to the upstream and downstream water column monitoring locations	Hard copies issued on 8/9/2006.	USEPA 10/02/07, CBB West 11/01/06
2	Appendix A-2	Add points in Pod Nos. R5B-10 and R5C-3 to Reach 4	E-Mailed on 07/13/06, revised hard copies issued on 8/9/06	USEPA 07/14/06, CBB West 7/16/06
3	Drawing B-26	Substitute native creeping bent grass for lawn grass in Wetland 5B in Reach 4	Hard copies issued on 8/9/2006.	USEPA 10/02/07, CBB West 11/01/06
4	Drawing Nos. A-3B, A-5A and E-2	Combined Reach 3B and 4 into one bypass system, eliminated Reach 3B backflow dam and turbidity curtain.	Hard copies issued on 8/9/2006.	USEPA 10/02/07, CBB West 11/01/06
5	Appendix A-2	Transferred Route 59 bridge area points to subsequent separate work plan	E-mailed on 11/13/07, hard copies issued on 12/21/07.	USEPA 11/20/07, CBB West 11/26/07
6	Volume 2 of 3, Appendix B: Reach Specific Restoration Plan - Reaches 3A, 3B and 4	Kentucky bluegrass and tall fescue species were deleted from the invasive species list for the shady floodplain habitat in Reach 3A.	E-mailed on 11/24/2009	USEPA 12/10/2009, CBB West 11/30/2009
7	Volume 2 of 3, Document 103, Appendix B, Section 4.1, 4.4.	Change in restoration monitoring periods and performance standards for woody plants.	E-mailed on 10/27/2011	USEPA 01/23/2012, WBK 12/29/2011
Final Design / Remedial Action Work Plan - Reach 5B				
1	Volume 1 of 2, Figure 2-1	Revisions to water column monitoring locations	Hard copies issued on 10/24/06	USEPA 10/02/07, CBB West 11/01/06
2	Vol. 2, Appendix E, Drawings E-4 and E-5	Relocated backflow dam for Reach 5B to upstream of the confluence	Hard copies issued on 10/24/06	USEPA 10/02/07, CBB West 11/01/06
3	Volume 2 of 3, Document 103, Appendix B, section 4.1	Change in restoration monitoring periods and performance standards for woody plants.	E-mailed on 11/17/2010	USEPA 01/23/2012, WBK 11/19/2011
Final Design / Remedial Action Work Plan - Reach 5C and 5D				
1, Rev. 1	Volume 1 of 3, Section 2.1.1.9 River Diversion for Excavation	Utilization of three-sided sheetpile enclosure method for isolating, dewatering, excavating backfilling and restoring small defined sections in Reach 5C.	E-mailed copy issued on 10/10/06, hard copies distributed on 10/24/06.	USEPA approved via e-mail on 10/13/06, and CBB West approved via e-mail on 10/12/06.
2, Rev.1	Volume 1 of 3, Sections 2.1.1.5 and 2.1.1.7, Site Clearing and Haul Roads	Allowed clearing and installation of haul roads in winter of 2006-2007 in Reaches 5C and 5D to take advantage of frozen ground conditions to prevent rutting of equipment in excavation areas.	E-Mailed copy issued on 01/31/07, hard copies distributed on 09/11/07.	USEPA approved via e-mail on 10/02/07 and CBB West approved via e-mail on 07/10/07.
3, Rev.1	Volume 1 of 3, Appendix A-1, Drawing A-2D	Deleted access road across four properties on west side of river in Reach 5D, and enlarged sheetpile enclosure for Pod No. R5D-14. [Note: This ICN was originally issued as ICN No.2 to the Reach 5C and 5D FD/RA Work Plan. When it was discovered that ICN No.2 was previously issued for the winter clearing and haul roads, this ICN was revised to ICN No. 3 to the Reach 5C and 5D FD/RA Work Plan.]	E-mailed copy issued on 06/28/07., and additional hydraulic review summary was e-mailed on 07/10/07. Hard copies were issued on 07/13/07. Revised ICN cover form with corrected ICN No. 3, Revision 1 was e-mailed on 08/31/07. Hard copies of revised ICN No. 3, Revision 1 form issued on 09/11/07.	USEPA approved via e-mail on 07/06/07. CBB West approved via e-mail on 07/10/07.
4	Volume 1 of 3, Appendix A-2, Excavation Verification Plan	Adoption of the property specific Excavation Plan for Parcel No. 0427104002 at 29W530 Forestview Drive in Reach 5D.	E-mailed copy issued on 07/17/07, hard copies distributed on 09/11/07.	USEPA 10/02/07, CBB West 12/11/07
5	Volume 1 of 3, Appendix A-1, Drawings A-2C and A-2D	Revised the major river crossing layout in Reach 5D to be diagonal with a sheetpiling section on the east end to construct the eastern off ramp.	E-mailed copies issued on 08/31/07, hard copies distributed on 09/11/07.	USEPA 10/02/07, CBB West 12/11/07
6	Volume 3 of 3, Appendix E - Geotechnical Design, Drawing E-3	Revised the temporary minor river crossing detail by substituting a wooden mat underlayment in lieu of the river rock and geogrid underlayment in the original design.	E-mailed copy issued on 08/31/07, hard copies distributed on 09/11/07.	USEPA 10/02/07, CBB West 12/11/07
7	Volume 3 of 3, Appendix E - Geotechnical Design, Section 2.2, Drawing Nos. E-1 and E-2	Performed excavation of Pod Nos. R5D-17 and R5D-18 in Reach 5D South utilizing benching construction methods in lieu of upgradient sheetpiling due to field conditions encountered.	E-mailed copy issued on 09/18/07, hard copies distributed on 09/24/07.	USEPA 10/02/07, CBB West 12/11/07
8	Volume 1 of 3, Document 100, Section 2.1.6 Restoration	The Reach 5D staging area on Mack Road will not be part of the Reach 5D Post-Construction Walk-Through on 11/20/08, because the staging area is still being utilized. The staging area will be restored once it has completed its use in a separate Post-Construction Inspection Walk-Through.	E-mailed copy issued on 11/20/08.	USEPA 11/25/08, CBB West 11/25/08
9	Volume 2 of 3, Document 103, Appendix B, Section 4.1, 4.4.	Change in restoration monitoring periods and performance standards for woody plants.	E-mailed on 10/27/2011	USEPA 01/23/2012, WBK 12/29/2011
Final Design / Remedial Action Work Plan - Reach 5E and 6				
1	Volume 1, Sections 2.1.1.5 and 2.1.1.7, Site Clearing and Haul Roads	Allowed clearing and construction of access roads and staging areas in Reach 5E while the Reach 5E and 6 FD/RA Work Plan was going through the regulatory review and approval process.	E-mailed copy issued on 08/07/07, hard copies distributed on 09/11/07.	USEPA approved via e-mail on 08/10/07. CBB West approved via e-mail on 08/10/07.
2	Document 100, Volume 1	To allow for interim approval to begin remedial activities in Reach 5E North while the Reach 5E and 6 FD/RA Work Plan is going through the regulatory review and approval process.	E-mailed copy issued on 08/31/07, hard copies distributed on 09/11/07.	On 09/05/07 USEPA and CBB West granted interim approval to begin remedial work in Reach 5E North while the final review and approval of the Reach 5E and 6 FD/RA Work Plan continues to completion.
3	Appendix A-1, Engineering Drawing A-2B	Revisions to minor river crossing layouts	E-mailed copy issued on 10/24/07, hard copies issued on 12/21/07.	USEPA approved on 11/06/07, CBB West approved on 10/28/07
4, Rev.2	Appendix A-1, Engineering Drawing A-2E	Addition of two floating bridge river crossings in Reach 6 South and new access roads on the east bank, with associated restoration plans.	E-mailed copy issued 09/11/08, hard copy issued on 09/26/08.	USEPA approved on 09/16/08, CBB West approved on 09/17/08.
5	Document 100, Section 3 -Schedule and Figures 3-1 and 3-2	Revised the Reach 5E and 6 Project Schedule, and the Overall Project Schedule to reflect use of a more appropriate (considering the current state of the economy) 5-day, 40-hour work week for 2008.	E-mailed on 03/18/08, hard copies issued on 04/01/08.	USEPA approved 06/10/08, CBB West approved 06/10/08
6	Document 100, Volume 1, Section Nos. 2.2 Traffic Control and 2.5.2 Water Column Monitoring	Revised Traffic Control Plan to accommodate request from City Of Warrenville, Revised Water Column Monitoring to reflect bypass pumping was not being utilized in Reaches 5E and 6.	E-mailed on 05/29/08, hard copy issued on 06/13/08.	USEPA approved on 06/03/08, CBB West approved on 05/30/08.
7	Appendix B, Document 104, Drawing B-12A	Revisions to the Reach 5E Mitigated Wetland, in accordance with CBB West's Sketch 1 showing a reduced footprint and a new storm sewer section.	E-mailed on 06/05/08, hard copy issued on 06/13/08.	USEPA approved 06/10/08, CBB West approved 06/11/08
8	Appendix B, Document 103, Drawing B-11B	Added river rock to restored river bank in Excavation Area Nos. R5E-9 and R5E-10.	E-mailed on 07/24/08, hard copies issued on 08/07/08.	USEPA approved on 08/05/08, CBB West approved on 08/05/08.
9	Appendix A-1, Drawing. A-2E	Revised sheetpile enclosure for western portion of Excavation Area R6-9.	E-mailed on 08/28/08, hard copy issued on 09/26/08.	USEPA approved on 09/04/08, CBB West approved on 08/28/08.
10	Appendix A-2, Excavation Verification Plan	Clarification of excavation of Boundary Point R6-7-B13.	E-mailed on 09/10/08, hard copy issued on 09/26/08.	USEPA approved on 09/11/08, CBB West approved on 09/10/08.
11	Volume 1 of 3, Document 100, Section 2.1.4	Utilize Targeted Material Stabilization Plan (TMSP) to stabilize the targeted material stockpiled at the REF from Reach 6 South that needs additional stabilization before its loaded in railcars.	E-mailed on 11/20/08	USEPA 11/25/08, CBB West 11/25/08
12	Volume 2 of 3, Appendix B, Drawings B-12D and B-12E	Postponed installation of in-river aquatic plants in Reach 6 until spring of 2010	E-mailed on 09/25/09	USEPA approved on 09/29/2009, CBB West approved on 09/25/2009.
13	Volume 2 of 3, Document 103, Appendix B, Section 4.1, 4.4	Change in restoration monitoring periods and performance standards for woody plants.	E-mailed on 10/27/2011	USEPA approved on 01/23/2012, WBK approved on 12/29/2011.

Table 3-3
Kress Creek/West Branch DuPage River Site
Final Completion Report - Route 59 Bridge Area
West Chicago Environmental Response Trust
DuPage County, Illinois

Summary of Interim Change Notices (ICNs)

ICN No.	Referenced Document	Description of Change	Date Issued	Date Approved/Acknowledged by Regulators
Final Design / Remedial Action Work Plan - Reach 7				
1	Draft Reach 7 FD/RA Work Plan, Site Clearing and Haul Roads	Allowed clearing and installation of haul roads and staging areas in Reach 7.	E-mailed on 10/23/08, hard copy to be issued.	USEPA approved on 10/28/08, CBB West approved on 11/03/08.
2	Volume 1 of 2, Document 101, Appendix A-1 Engineering Drawings, Document 102, Appendix A-2 Excavation Verification Plan; and Volume 2 of 2, Document 103, Appendix B	Provides for the addition of Excavation Area Nos. R8-1 and R8-2 to the Reach 7 excavation areas	E-mailed 06/24/2010	USEPA approved on 06/28/2010, WBK approved on 06/27/2010.
3	Volume 1 of 2, Document 102, Appendix A-2, Excavation Verification Plan	Provides for the correction of the co-located drillhole associated with Drillhole 15127, and the corrected table is attached to the ICN.	E-mailed on 07/27/2010	USEPA approved on 08/10/2010, WBK approved on 08/09/2010.
4	Volume 1 of 2, Document 101, Appendix A-1, Document 102, Appendix B	ICN No. 4 (Rev. 1) presents revisions to the limits of disturbance on the site maps, incorporates seed mix changes at the request of WBK, and includes the data for the new wetland 10 that was delineated. ICN No. 4 (Rev. 1) incorporates responses to WBK's comments issued by e-mail on 08/20/2010.	E-mailed on 12/01/2010	USEPA approved on 7/28/2011, WBK approved on 01/19/2011.
5	Volume 1 of 2, Document 101, Appendix A-1, Engineering Drawings	Provides for the relocation of the rock berms and sheetpiling cofferdams in the Phase 3 area of Reach 7.	E-mailed on 12/01/2010	USEPA approved on 12/07/2010, WBK approved on 01/19/2011.
6	Volume 1 of 2, Document 101, Appendix A-1, Engineering Drawings, Drawing A-2B and; Volume 2 of 2, Appendix D, Document 105, Drawing D-4	Deletes the 4 inch to 6 inch layer of drainage stone below the articulated concrete block (ACB) mats to be installed on the downstream face of the upstream sheetpile diversion dam.	E-mailed on 07/27/2010	USEPA approved on 08/10/2010, WBK approved on 01/10/2012
7	Volume 1 of 2, Document 101, Appendix A-1, Engineering Drawings, Drawing A-2B, Drawing D-4	Deletes Big Bremme Creek bypass pumping system and instead provides for excavation of drainage channel from the mouth of Big Bremme Creek.	E-mailed on 08/12/2010	USEPA approved on 7/28/2011, WBK approved on 08/16/2010.
8	Volume 2 of 3, Document 103, Appendix B, Section 4.2	Change in restoration monitoring periods and performance standards for woody plants.	E-mailed on 10/27/2011	On 12/19/2011 WBK expressed that the Forest Preserve District only wants cages removed that are in the flood corridor of the river, not the upland areas. The only area planted with woody plants are in upland areas, therefore ICN 8 and approval are unnecessary
9	Volume 2 of 2, Document 103, Appendix B, Section 4.2	Change in planting requirements on Forest Preserve property (exchanging tree and shrub plantings for boulders); relocation of wetland plant plugs intended to be planted in Reach 7 to Reach 6; incorporation of several wetland areas in the restored main staging area; documentation of potential changes in monitoring requirements in areas disturbed by the Forest Preserve Contractor in the main staging area and adjacent haul roads.	Draft e-mailed on 01/11/2012, final version e-mailed on 02/02/2012	USEPA approved on 6/18/13, WBK approved on 2/15/12.
Final Design / Remedial Action Work Plan - Reach 8				
1	Volume 2 of 3, Document No. 103, Appendix B, Reach Specific Restoration Plan	The ordering and planting of replacement trees and shrubs on Forest Preserve property for areas disturbed in Reach 8 in 2011 shall be suspended until further notice.	E-mailed on 07/15/2011	USEPA approved on 07/19/2011, WBK approved on 07/19/2011.
2	Volume 1 of 3, Document No. 101, Appendix A-1 Engineering Drawings	Changed access route to Pods R8-6, R8-8 and R8-9. The revised access route uses the bike trail and eliminates installing two river crossings.	E-mailed on 07/15/2011	USEPA approved on 07/19/2011, WBK approved on 07/19/2011.
3	Volume 2 of 3, Document No. 103, Appendix B, Reach Specific Restoration Plan	Revisions to restoration scope on Forest Preserve property in Reach 8.	E-mailed on 09/08/2011	USEPA approved on 09/15/2011, WBK approved on 09/08/2011.
4	Volume 1 of 3, Document No. 100, Figure 1-2, Project Organization Chart	Updated company names and individual roles on the project organization chart.	E-mailed on 09/08/2011	USEPA approved on 09/15/2011, WBK approved on 09/08/2011.
5	Volume 1 of 3, Document No. 100, Figure 3-1, Preliminary 2011 Reach 8 Schedule	Postpones the work to be completed in Pod R8-28 until the time when the three pods adjacent to Bower Elementary School (R8-25, R8-26 and R8-27) are performed.	E-mailed on 09/08/2011	USEPA approved on 09/15/2011, WBK approved on 09/08/2011.
6	Volume 2 of 3, Document No. 103, Appendix B, Reach Specific Restoration Plan, Drawing Nos. B-10B, B-10C, B-10F and B-10G	Forest Preserve additional enhancements to restoration in Reach 8.	E-mailed on 09/14/2011	USEPA approved on 09/15/2011, WBK approved on 09/14/2011.
7	Volume 1 of 3, Document No. 100, Appendix B, Reach Specific Restoration Plan - Reach 8	Complete remedial activities at Parcel Identification Number (PIN):04-35-403-020 without obtaining access agreement.	E-mailed on 09/26/2011	USEPA approved on 09/26/2011, WBK approved on 09/26/2011.
8	Volume 1 of 3, Document No. 100, Appendix B, Reach Specific Restoration Plan, Section 2.2, Traffic Control	Update traffic control plan as it relates to the trucking routes to and from the REF to Excavation Areas R8-3, R8-4 and R8-40.	E-mailed on 09/27/2011	USEPA approved on 09/28/2011, WBK approved on 09/28/2011.
9	Volume 1 of 3, Document No. 100, Appendix B, Reach Specific Restoration Plan	Revised approach for R8-39 to an open bypass channel in lieu of bypass pumping.	E-mailed on 05/10/2012	USEPA approved on 5/31/2012, WBK approved on 05/25/2012.
10	Volume 1 of 3, Document Nos. 100 and 101	Revised the remediation of removal area R8-27 and the removal and rebuilding of the existing retaining wall and a portion of the flood control berm; as well as limits of construction activities on Bower Elementary School property	E-mailed on 05/24/2012	USEPA approved on 5/31/2012, WBK approved on 06/1/2012.
11	Volume 1 of 3, Document No. 101	Provides documentation of the laydown areas within the McDowell Grove Staging Area.	E-mailed on 06/01/2012	USEPA approved on 5/21/2012, WBK approved on 05/21/2012.
12	Volume 1 of 3, Document No. 101	Revised the secondary channel diversion dam.	E-mailed on 06/07/2012	USEPA approved on XXXX, WBK approved on XXXX.
13	Volume 2 of 3, Document 105	Revised the cross section of the restored MSE retaining wall on Bower Elementary School property.	E-mailed on 09/28/2012	USEPA approved on 10/02/2012, WBK approved on 10/09/2012.
14	Volume 2 of 3, Document 103	Revised Forest Preserve Enhancements in Reach 8B.	E-mailed on 09/28/2012	USEPA approved on 10/02/2012, WBK approved on 10/09/2012.
15	Volume 3 of 3, Document 105	Final grading for Bower Elementary School Berm behind MSE retaining wall.	E-mailed on 10/25/2013	USEPA approved on XXXX, Local Communities approved on XXXX.
16	Volume 2 of 3, Document 103	Revised Reach 8 monitoring requirements.	E-mailed on 10/25/2013	USEPA approved on XXXX, Local Communities approved on XXXX.
Final Design / Remedial Action Work Plan - Route 59 Bridge Area				
1	Document 100, Document 101	Documents that the soldier pile and lagging were cut below grade and left in place. Also documents that IDOT requested that CA-6 be placed in the void observed under the existing approach slab during the removal of the approach slab, to the extent possible, in order for the new concrete approach slab to be poured, without slumping under the existing slab.	E-mailed on 10/23/2012	USEPA approved on 4/4/13, WBK approved on 4/4/13.
2	Document 102	Documents the deviation of excavation boundary points from design elevations due to the presence of structural concrete wing walls and a concrete storm sewer outfall.	E-mailed on 10/31/2012	USEPA approved on XXXX, Local Communities approved on XXXX.

Table 3-3
Kress Creek/West Branch DuPage River Site
Final Completion Report - Route 59 Bridge Area
West Chicago Environmental Response Trust
DuPage County, Illinois

Summary of Interim Change Notices (ICNs)

ICN No.	Referenced Document	Description of Change	Date Issued	Date Approved/Acknowledged by Regulators
Common Scoping and Planning Documents				
1	400, BBL HASP	Updated BBLES' Health & Safety Plan, primarily adding new loss prevention system sections and quicklime handling.	Posted on website for regulatory review on 04/13/06, hard copies issued on 4/27/06.	N/A
2	New Document 900	Targeted Material Stabilization Plan	Posted on website for regulatory review on 04/13/06, hard copies issued on 4/27/06.	USEPA 4/14/06, CBB West 3/28/06
3	401, Sevenson HASP	Updated Sevenson's Health & Safety Plan, adding quicklime handling procedures and loss prevention updates.	Posted on website for regulatory review on 04/13/06, hard copies issued on 4/27/06.	N/A
4	New SOP 226 for Real Time Monitoring	SOP - 226 Operation of the TSI Model 8520 Dust Trak Aerosol Monitor	Posted on website for regulatory review on 04/13/06, hard copies issued on 4/27/06.	USEPA 01/22/08, CBB West 11/01/06.
5	WCP Nos. 607, 611, 632 and 652.	Incorporation of former Kerr-McGee WCP's into the Common Planning and Scoping Documents for railcar loading operations.	Hard copies issued 4/27/06	USEPA 01/22/08, CBB West 11/01/06.
6	New SOP-227, Fish Relocation Plan and SOP-228, Mussel Relocation Plan	New SOPs added to the Common Documents package for Fish Relocation and Mussel Relocation	Hard copies issued 5/5/06	USEPA 01/22/08, CBB West 11/01/06.
7	WCP 320 Radioactive Material Shipments	Updated WCP 320 to current CFR, and includes trucking requirements from excavation site to REF.	Hard copies issued 8/9/06	USEPA 01/22/08, CBB West 11/01/06.
8	Table of Contents (TOC)	Updated TOC to reflect additional documents added.	Hard copies issued 8/9/06	USEPA 01/22/08, CBB West 11/01/06.
9	Document 200 - QAPP, New SOP 229	Added SOP 229 Monitoring Well and Piezometer Decommissioning and updated Table of Contents for the Common Scoping and Planning Documents	Hard copies issued 05/08/07	USEPA 01/22/08, CBB West 01/31/08.
10	Document 300 - Construction Quality Assurance Plan	Revised Section 02420 - Restoration/Mitigation	Hard copies issued 05/08/07	USEPA 01/22/08, CBB West 01/31/08.
11	Document 102, Appendix A-2 Excavation Verification Plan	Updated tables from Consent Decree to current	E-mailed on 12/13/07, hard copies issued on 12/21/07,	USEPA 01/22/08, CBB West 01/31/08.
12	WCP Nos. 607, 611, 632 and 652.	Deleted WCP 607 as non-applicable, updated WCPs 611, 632 and 652.	Hard copies issued 02/07/08.	USEPA 06/10/08, CBB West 06/10/08.
13	Document 400, 401 and 500	Updated Arcadis & Sevenson HASPS and Emergency Contingency Plan	E-mailed on 04/17/08, hard copies issued on 04/23/08	USEPA 06/10/08, CBB West 06/10/08.
14	Document 200 - QAPP, New SOP 230	SOP-230, Tree Tagging and Tracking	E-mailed Revision 1 on 11/07/08.	USEPA 10/28/08, CBB West 10/27/08.
15	Document 200 - QAPP, Appendix B SOPs, WCPs 611, 617, 632 & 652	Revised Appendix B SOPs and WCPs 611, 617, 632 and 652.	E-mailed on 04/15/2011	USEPA 01/23/2012, WBK 04/18/2011.
16	Document 200 - QAPP, WCP 330	Revised Table of Contents and added WCP 330 into Appendix of the Common Scoping and Planning Documents	E-mailed on 09/08/2010	USEPA 09/15/2011, WBK 09/16/2011.
17	Document 102, Appendix A-2, Excavation Verification Plan for All Reaches	Excavation boundary and excavation interior tables and drawings.	E-mailed on 10/27/2011	USEPA 01/23/2012, WBK 12/29/2011.
18	Document 400, 401 - ARCADIS and Sevenson HASP	Updated ARCADIS & Sevenson HASPs to bring them up to date	E-mailed on 09/08/2010	USEPA 09/15/2011, WBK 09/16/2011.
19	Document 200 - QAPP, WCP 345	Added Special Work Instructions for WCP 345	E-mailed on 09/08/2011	USEPA 09/15/2011, WBK 09/16/2011.
20	Document 301, Construction Quality Assurance Project Plan, Attachment A: Specifications	Revised Section 02200 of the CQAP to include Work Instruction for Response to Sinking/Rutting Equipment in Impacted Areas.	Emailed on 09/29/2011	USEPA 10/27/2011, WBK 09/30/2011.
21	Document 200, Quality Assurance Project Plan, Appendix B	Railcar covers can be stacked 6 high	Emailed on 10/26/2011	USEPA 10/27/2011, WBK 10/27/2011.
22	Document 200, Quality Assurance Project Plan	Gamma spectroscopy to be completed at off-site laboratory. Added WCP 364 and 365 and deleted WCP 366.	E-mailed on 05/24/12	USEPA 5/31/2012, WBK XXXX

Table 8-1
Kress Creek/West Branch DuPage River Site
Final Completion Report - Route 59 Bridge Area
West Chicago Environmental Response Trust
DuPage County, Illinois

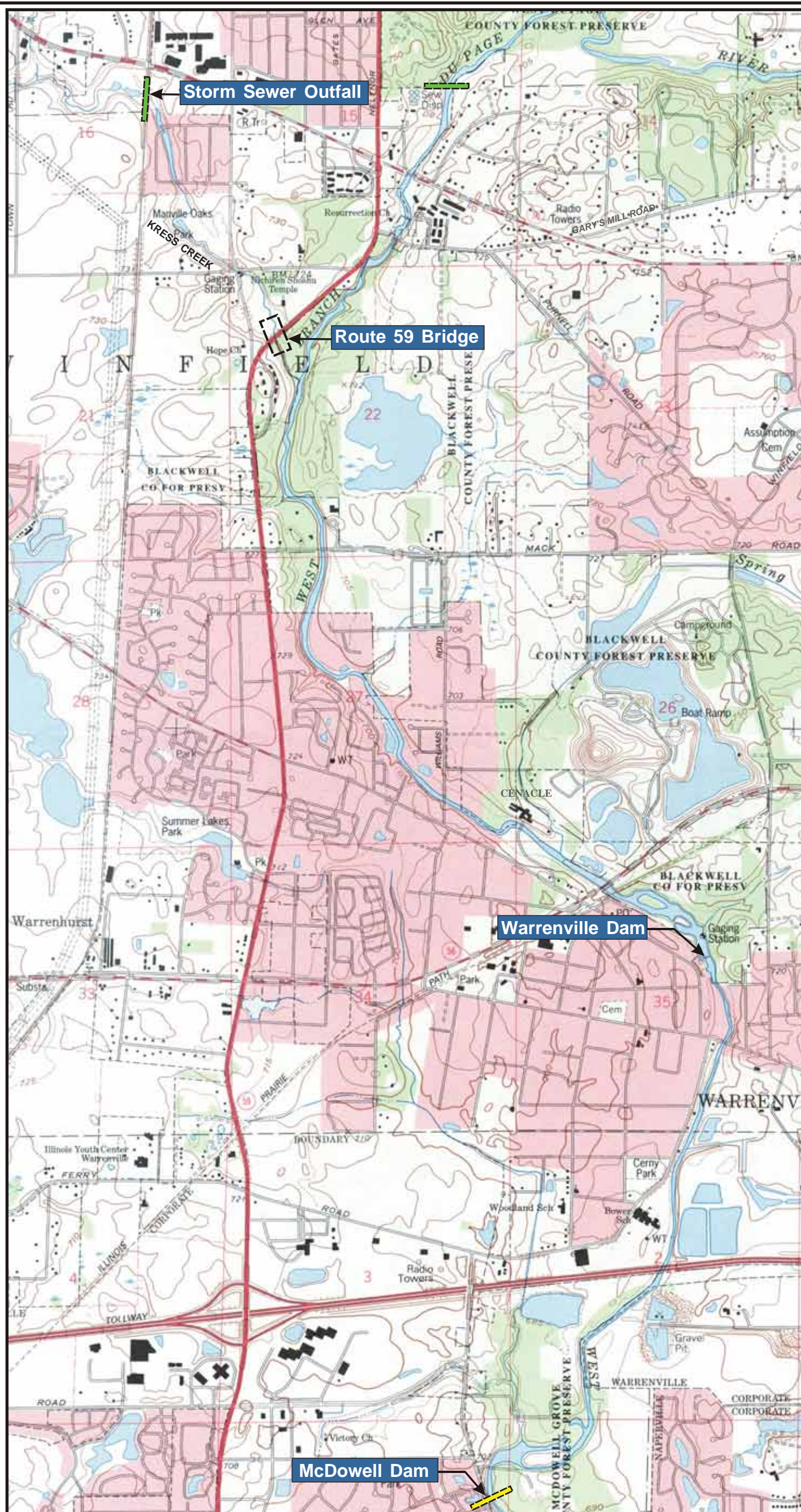
Summary of Monitoring Requirements in Route 59 Bridge Area

Habitat or Structure	Monitoring Endpoint	Monitoring Methodology	Performance Standard	Restoration Metric	Monitoring Duration
Open Floodplain Plant Community	% Cover; Vegetation metrics; Woody plant survival	Vegetation data collection plots; Surviving woody plant counts	90% Cover; $\leq 15\%$ cover of invasive weeds; 90% woody plant survival	Increase in Mean C, FQI, and RIV_N from year 1 to year 3; Minimum Mean C of 3.5 in third year; No areas >0.5 square meter void of vegetation; 3 most dominant species must NOT be non-native or invasive species	3 years
Wetlands	% Cover; Vegetation metrics; Woody plant survival	Vegetation data collection plots; Surviving woody plant counts	90% Cover; $\leq 15\%$ cover of invasive weeds; 90% woody plant survival	Increase in Mean C, FQI, and RIV_N from year 1 to year 3; Minimum Mean C of 3.5 in third year; No areas >0.5 square meter void of vegetation; 3 most dominant species must NOT be non-native or invasive species	3 years
Upland Plant Community	% Cover; Vegetation metrics; Woody plant survival	Vegetation data collection plots; Surviving woody plant counts	90% Cover; $\leq 15\%$ cover of invasive weeds; 90% woody plant survival	Increase in Mean C, FQI, and RIV_N from year 1 to year 3; Minimum Mean C of 3.5 in third year; No areas >0.5 square meter void of vegetation; 3 most dominant species must NOT be non-native or invasive species	3 years

Notes:

1. Banks are monitored during low flow conditions.
2. Vegetation monitoring is primarily performed in the summer, with supplemental monitoring conducted in the spring and/or fall, if needed.
3. Access will be granted to IDOT property for monitoring purposes by means of an open construction bond.

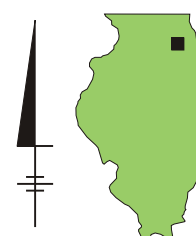
Figure



LEGEND:

 = Upstream Limit

 = Downstream Limit



Area Location

WEST CHICAGO ENVIRONMENTAL RESPONSE TRUST
KRESS CREEK/WEST BRANCH DUPAGE RIVER SITE AND
THE RIVER PORTION OF THE SEWAGE TREATMENT PLANT SITE

SITE LOCATION MAP



FIGURE
1-1



Appendix A

File Index of Project Documents (on
attached disc)

Appendix A

File Index of Project Documents

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 1.0 General and Administrative
 - 1.1 General Correspondence
 - 1.2 Reports and Meeting Notes
 - 1.3 Legal
 - 1.3-1 Department of Justice
 - 1.3-2 NRD Issues
 - 1.3-3 Karagainus & White
 - 1.4 Government
 - 1.4-1 U. S. EPA
 - 1.4-1-1 Correspondence
 - 1.4-1-2 Consent Decree
 - 1.4-1-2-1 Administrative Order for RS/FS
 - 1.4-1-3 Unilateral Administration Order (UAO)
 - 1.4-1-4 Work Plan Review Comments
 - 1.4-1-5 Data Transmittal
 - 1.4-2 Previous Investigations
 - 1.4-2-1 1995 GPS Survey
 - 1.4-2-2 1993 GPS Survey
 - 1.4-3 City of West Chicago
 - 1.4-4 IEMA (formerly IDNS)**
 - 1.4-5 Illinois Dept. of Natural Resources
 - 1.4-6 DuPage County Dept. of Environmental Concerns
 - 1.4-7 Illinois Historic Preservation Agency
 - 1.4-8 DuPage County Forest Preserve (Research Permit)
 - 1.4-9 Corp. of Engineers
 - 1.4-10 Illinois Department of Transportation
 - 1.4-11 West Chicago Park District – Manville Oaks
 - 1.4-12 The Cenacle
 - 1.4-13 Department of the Army
 - 1.4-14 Permits

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 1.4-15 Communities/Christopher B. Burke Engineering
 - 1.4-15-1 Correspondence
 - 1.4-15-2 Environmental Studies
- 1.4-16 City of Warrenville
- 1.4-17 Illinois Environmental Protection Agency (IEPA)
- 1.5 Daily/Weekly Activity Reports
- 1.6 Insurance
- 1.7 Utilities
 - 1.7-1 EJ & E Railroad
- 1.8 Health and Safety
 - 1.8-1 Accident Reports**
 - 1.8-2 Safety Meetings**
 - 1.8-3 Vehicle Inspections**
 - 1.8-4 Site Safety Tour/Inspections**
- 1.9 Personnel Records (Including original attendance sheets)
 - 1.9-1 Training Materials**
 - 1.9-2 Job Descriptions**
- 1.10 Public Relations
 - 1.10-1 Newspaper Articles
- 1.11 Site Administration (*Reference: Scope & Planning Docs.*)**
- 1.12 Quality System
 - 1.12-1 Review Meetings**
 - 1.12-2 System Reviews/Audits**
 - 1.12-3 NCR's/CAR's (Logs)**
- 2.0 Accounting and Finance
 - 2.1 Cost Estimates
 - 2.1-1 Kerr-McGee
 - 2.1-2 Contractors
 - 2.2 AFE's
 - 2.3 Cost Accounting

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 2.4 Taxes
- 2.5 Financial Audits
- 3.0 Engineering
 - 3.1 Work Plan and Specifications (Reference: Scoping and Planning Docs)
 - 3.1-1 Risk Assessment and Pre-Design Plan and Biweekly Meeting Notes
 - 3.1-2 Investigation Work Plan Documents
 - 3.1-3 Remedial Design Work Plan Documents
 - 3.1-4 Remedial Action Work Plan Documents
 - 3.2 Engineering Drawings (See 7.1 for Individual Property Plans)
 - 3.2-1 Engineering Calculations
 - 3.2.2 Cross Sections
 - 3.2.3 Verification Drawings
 - 3.2-3-1 Base of Excavation
 - 3.2-3-2 Overburden Removal
 - 3.2.4 Reports
 - 3.2-5 Characterization
 - 3.3 Contracts - Engineering
 - 3.3-1 West Central Environmental Consultants/ProSource (Correspondence)
 - 3.3-1-1 Bidder Qualification
 - 3.3-1-2 Bid Package (Including Response & Analysis)
 - 3.3-1-3 Contract & Amendments
 - 3.3-1-3-1 Work Change Request
 - 3.3-1-3-2 Progress Invoices
 - 3.3-1-4 Estimates & Forecasts
 - 3.3-1-5 Schedules
 - 3.3-1-6 Reports
 - 3.3-1-7 Characterization Report
 - 3.3-2 Weston, Inc. (Correspondence)
 - 3.3-2-1 Bidder Qualifications
 - 3.3-2-2 Bid Package (Including Response & Analysis)

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 3.3-2-3 Contract & Amendments
 - 3.3-2-3-1 Work Change Request
 - 3.3-2-3-2 Progress Invoices
- 3.3-2-4 Estimates & Forecasts
- 3.3-2-5 Schedules
- 3.3-2-6 Reports
- 3.3-3 R. H. Anderson (Correspondence)
 - 3.3-3-1 Bidder Qualifications
 - 3.3-3-2 Bid Package (Including Response & Analysis)
 - 3.3-3-3 Contract & Amendments
 - 3.3-3-3-1 Work Change Request
 - 3.3-3-3-2 Progress Invoices
 - 3.3-3-4 Estimates & Forecasts
 - 3.3-3-5 Schedules
 - 3.3-3-6 Reports
- 3.3-4 Independent Testing Support - (Correspondence)
 - 3.3-4-1 TSC
 - 3.3-4-2 Hazen
 - 3.3-4-3 Lancaster
- 3.3-5 T.L. Rice Inc. (Correspondence)
 - 3.3-5-1 Bidder Qualification (Resume')
 - 3.3-5-3 Contracts and Amendments
 - 3.3-5-6 Reports
- 3.3-6 BBL Inc. (Correspondence)
 - 3.3-6-1 Bidder Qualifications
 - 3.3-6-2 Bid Package (Including Response and Analysis)
 - 3.3-6-3 Contract and Amendments
 - 3.3-6-3-1 Change Orders (Work Changes)
 - 3.3-6-3-2 Invoices
 - 3.3-6-4 Reach Specific Alternatives Evaluation Report (RSAE)

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 3.3-6-4-1 Comments to RSAE Report
- 3.3-6-5 Conceptual Design Report
 - 3.3-6-5-1 Comments to Conceptual Design Report
 - 3.3-6-5-2 Reach 8 Addendum
- 3.3-6-6 Conceptual Restoration Plan
 - 3.3-6-6-1 Comments to Conceptual Restoration Plan
- 3.3-6-7 Reports
 - 3.3-6-7-1 Transportation Plan
 - 3.3-6-7-2 ARARS
- 3.3-6-8 Detailed Design
 - 3.3-6-8-1 Engineering Calculations
 - 3.3-6-8-2 Drawings
 - 3.3-6-8-3 FEQ Modeling
 - 3.3-6-8-4 Operation and Maintenance
- 3.3-6-9 RI/FS
 - 3.3-6-9-1 Remedial Investigation/Comments
 - 3.3-6-9-2 Feasibility Study
- 3.4 Previous Investigations (Pre-1997)
- 3.5 Field Investigation (1997 to current)
 - 3.5-1 Surface Gamma Survey
 - 3.5-1-1 Field Data
 - 3.5-1-2 Maps
 - 3.5-2 Shallow Soil Test Holes
 - 3.5-2-1 1997 Borehole Field Logs
 - 3.5-2-2 1998 Borehole Field Logs
 - 3.5-2-3 1999 Borehole Field Logs
 - 3.5-2-4 2000 Borehole Field Logs
 - 3.5-2-5 2001 Borehole Field Logs
 - 3.5-2-6 2002 Borehole Field Logs
 - 3.5-2-7 Soil Boring Log Sheets

Kress Creek

File Index

(Retention Period is lifetime per Kerr-McGee Legal Department)

- 3.5-2-8 Radiological Lab Data
- 3.5-2-9 Land Surveying
- 3.5-2-10 Field Maps
- 3.5-2-11 Borehole Logging Master Spreadsheets & Checkprints
- 3.5-2-12 Underwater Soil Sample (Hazen)
- 3.5-2-13 Daily Summary
- 3.5-3 Deep Soil Borings
 - 3.5-3-1 Soil Boring Logs
 - 3.5-3-2 Downhole Gamma Logging
 - 3.5-3-3 Geotechnical Soil Testing
 - 3.5-3-4 Radiological Lab Data
 - 3.5-3-5 Land Surveying
 - 3.5-3-6 Field Maps
- 3.5-4 Piezometers/Staff Gauges/Stream Flow/Surface Water
 - 3.5-4-1 Soil Boring Logs
 - 3.5-4-2 Borehole Field Logs
 - 3.5-4-3 Radiological Lab Data
 - 3.5-4-4 Land Surveying
 - 3.5-4-5 Water Level Field Data
 - 3.5-4-6 Stream Flow Calculations
 - 3.5-4-7 Field Maps
 - 3.5-4-8 Chain of Custody
 - 3.5-4-9 Water Analysis (Manville OAKS Park Pond)
 - 3.5-4-10 Sediment Sampling
- 3.5-5 Field Log Books
- 3.5-6 Aerial Photos
- 3.5-7 Weston Tree Study
- 3.5-8 Weston Wetlands Maps for West Branch DuPage River
- 3.6 Data Output ARCHIVE - Including all extensions thru 3.6-3
- 4.0 Construction

Kress Creek

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(Retention Period is lifetime per Kerr-McGee Legal Department)

- 4.1 BBL (Correspondence)
 - 4.1-1 Bidder Qualification (See 3.3-6-1)
 - 4.1-2 Bid Package (See 3.3-6-2)
 - 4.1-3 Contracts & Amendments
 - 4.1-3-1 Change Orders (Work Changes)
 - 4.1-3-2 Invoices
 - 4.1-3-3 Submittals
 - 4.1-4 Schedules
 - 4.1-5 Reports
 - 4.1-5-1 Manpower Estimate & Forecast
 - 4.1-5-2 QC Field Reports
 - 4.1-5-3 Safety/Incident Reports
 - 4.1-5-4 Turnover Documents
 - 4.1-6 Verification Data
 - 4.1-6-1 *Verf., Maps, and Data (Bottom of OB and BP)***
 - 4.1-6-2 *Field Logbooks***
 - 4.1-6-3 *Calibration Records (Raw Data GPS)***
 - 4.1-7 Maintenance Inspection Reports
- 4.2 Miscellaneous Contracts (RD-n-P Drilling)
- 5.0 Procurement - Purchase Orders (Filed numerically with approval documents, bid evaluation, receiving reports, specs, etc)
 - 5.1 Contractor Procurement and Meetings
 - 5.1-1 Property or Equipment Loss - Inventory
 - 5.2 Kerr-McGee Procurement
 - 5.3 Vendor List
- 6.0 Health Physics
 - 6.1 Air Monitoring
 - 6.2 Survey Data
 - 6.2-1 Backfill Sample Analysis – Report (Sources)
 - 6.3 Instrument/Equipment Calibrations and Quality Assurance (H.P. 17.0000)
 - 6.4 Respiratory Protection Program Maintenance

Kress Creek

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(Retention Period is lifetime per Kerr-McGee Legal Department)

- 6.5 Dosimetry Monitoring Data
- 6.6 Safe Work Permits
- 6.7 Downhole and Gamma Logging
 - 6.7-1 Bridges - Westwind Division
- 6.8 Water Survey
- 6.9 Training
- 7.0 Property Completions
 - 7.1 Work Orders
 - 7.1-1 Parcel Folders (access agreements, photographs, etc.)
 - 7.2 Access Agreements
 - 7.3 Bills of Lading
 - 7.4 Materials Handled (Overburden Verification)
 - 7.5 Invoices
 - 7.6 Radiological Sampling and Data Verifications (Soil Samples)
 - 7.6-1 Excavation Depth Verifications
 - 7.7 Notifications / Verification Release from U.S. EPA
 - 7.8 Acceptance from City of West Chicago
 - 7.9 Property Video Survey
- 8.0 Closure Report



Appendix B

Summary Table of "GPS Points Achieved" Issued for the Bottoms of Overburden and Targeted Materials for the Route 59 Bridge Area (on attached disc)

Appendix B

Summary Table of "GPS Points Achieved" Issued for the Bottoms of Overburden and Targeted Material for the Route 59 Bridge Area

Reach Area	Points Achieved Date	Package Delivery Date and Method
R3-23	9/27/12	9/28/12 via e-mail
R3-23	9/28/12	9/29/12 via e-mail
R3-23	9/29/12	10/1/12 via e-mail
R3-23	10/1/12	10/1/12 via e-mail
R3-25	9/24/12	9/25/12 via e-mail
R4-2	10/8/12	10/9/12 via e-mail
R4-5	10/2/12	10/2/12 via e-mail
R4-5	10/3/12	10/4/12 via e-mail
R4-5	10/4/12	10/5/12 via e-mail

Distribution Initiator:

Nate Kernan, ARCADIS

Distribution List:

Mark Krippel, WCERT
Rick Copeland, WCERT
Jeffery Williams, Shaw
Timothy Fischer, USEPA
Kelly Grahn, IEMA
Steve Shafer, REM/IEMA
Travis Stein, IDOT
Adnan Khayyat, IDOT
John Wills, WBK Associates
Jamie Geils, WBK Associates
Lacey Lawrence, WBK Associates

Mark Gravelding, ARCADIS
Heather VanDewalker, ARCADIS
Joe Molina, ARCADIS
Elizabeth Razawich, ARCADIS
Rick Elia Jr., Severson
Marty Folan, Severson
Ricky Moss, Severson
Doug Coble, Severson
Amy Ruta, Severson
Mark Schmitt, Severson
Sean Crumes, Severson
Mike Crystal, Severson
Wade Carlson, Carlson PSI
Brent Fulton, Carlson PSI



Appendix C

Notification of Successful GPS
Verification Survey for the Bottoms of
Overburden, Route 59 Bridge Area –
All Sections (on attached disc)

Mr. Rick Copeland
West Chicago Environmental Response Trust
800 Weyrauch Street
West Chicago, Illinois 60185

Subject:

**Notification of Successful GPS Verification Survey
For the Bottom of Overburden – Route 59 Bridge Area (Reaches 3B and 4)**
Kress Creek/West Branch of the DuPage River Remedial Action Project
DuPage County, Illinois

Dear Rick:

In accordance with Section 2.1.5.2 – Notification in the *Route 59 Bridge Area (Reaches 3B and 4) Final Design/Remedial Action Work Plan* (FD/RA Work Plan) for the above-referenced project, ARCADIS U.S., Inc. (ARCADIS) is pleased to notify the West Chicago Environmental Response Trust (WCERT), the United States Environmental Protection Agency (USEPA) RPM/OSC, the Illinois Emergency Management Agency (IEMA) and the Local Communities' Representatives (WBK Associates and Dupage County) that a successful Global Positioning System (GPS) Verification Survey was performed for the **Bottom of Overburden** for the excavation areas listed below in **Reaches 3B and 4** of the Kress Creek/West Branch DuPage River Remedial Action Project located in West Chicago (DuPage County), Illinois on the date noted below:

1. **This GPS Verification Survey Package issued on December 14, 2012 includes the excavation areas listed below in Reaches 3B and 4, and presents the overburden points achieved and documented in those listed areas in accordance with the Work Plan. These GPS verification points for bottom of overburden in Reach 8 were previously distributed by a series of e-mails entitled "GPS Points Achieved" that were sent from September 25, 2012 through October 9, 2012.**

Excavation Locations: Reaches 3B and 4: Excavation Areas R3B-23, R3B-25, R4-2, and R4-5.

Date of Verification: December 14, 2012

KC 264

ARCADIS
295 Woodcliff Dr., Suite 301
Fairport
New York 14450
Tel 585.385.0090
Fax 585.385.4198
www.arcadis-us.com

Environmental

Date:
December 17, 2012

Contact:
Nathan A. Kernan

Cell Phone:
585.217.3373

Email:
Nathan.Kernan@arcadis-us.com

Our ref:
B0071043.0000

In accordance with Section 2.1.5.1 – Concurrent Verification of the FD/RA Work Plan, ARCADIS sent an email each week with a weekly schedule for the next week that listed the projected locations and dates where excavations and GPS Verification Surveys would be performed. ARCADIS sent those weekly schedule emails to WCERT, Tim Fischer of the USEPA; Adnan Khayyat, Kelly Grahn, and Steve Shafer of IEMA/DNS; and John Wills, Jamie Geils and Lacey Lawrence of WBK Associates providing them the required 24-hour notice that the excavations and GPS Verification Surveys for the bottom of overburden in the above-listed areas would be completed during those weeks.

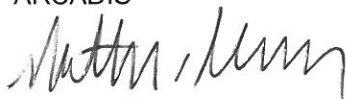
The attached Excel file prepared by ARCADIS' surveying subcontractor, Carlson McCain, includes a separate table entitled *Kress Creek/ West Branch DuPage River Verification Points, Bottom of Overburden* for each of the 4 excavation areas that were completed in Reaches 3B and 4 in 2012, and the tables list the design, actual, and difference of the survey coordinates and elevations of the verification points in each section.

The attached PDF file prepared by Carlson McCain includes 1 PDF figure numbered 1 of 1. The figure presents a map of the excavation locations of the 4 excavation areas in Reaches 3B and 4 that were completed in 2012, and denote the location of each of the verification points that have been verified.

The verification points listed in these attachments have been achieved and excavation of the targeted material in the specified excavation locations has proceeded in accordance with the prior preliminary verbal approval of these points based on the field monitoring of the regulators' representatives. Documents pertaining to this survey are available for inspection at the ARCADIS construction office at WCERT's REF Facility.

Sincerely,

ARCADIS



Nathan A. Kernan
Construction Manager

Copies:

Timothy Fischer, USEPA
Mark Krippel, WCERT
Kurt Stimpson, WCERT
Jeffery Williams, Shaw
Adnan Khayyat, IEMA
Kelly Grahm, IEMA
Steve Shafer, REM/IEMA
Lacey Lawrence, WBK Associates
John Wills, WBK Associates
Jamie Geils, DuPage County
Michael Crystal, Severson
Rick Elia, Jr., Severson
Marty Folan, Severson
Ricky Moss, Severson
Vincent Fracassi, Severson
Wade Carlson, Carlson McCain
Mark Gravelding, ARCADIS
Joseph Molina, ARCADIS
Elizabeth Razawich, ARCADIS
Heather Vandewalker, ARCADIS

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Overburden
Reach R3B-23

Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-23-15111t	1020044.9	1889133.1	701.3	1020044.943	1889133.031	704.309	0.043	-0.069	3.009	Tronox directed to take all material as targeted
3	R3b-23-16090t	1020036.2	1889119.5	699.6	1020036.054	1889119.543	700.046	-0.146	0.043	0.446	
3	R3b-23-16091t	1020022.2	1889112.2	699.8	1020022.095	1889112.231	700.224	-0.105	0.031	0.424	
3	R3b-23-16103t	1020043.2	1889123.2	703.4	1020043.125	1889123.207	703.87	-0.075	0.007	0.47	
3	R3b-23-16104t	1020014.8	1889106.3	702.1	1020014.801	1889106.176	702.211	0.001	-0.124	0.111	
3	R3b-23-16105t	1020051.9	1889113.7	699.9	1020051.878	1889113.714	700.361	-0.022	0.014	0.461	
3	R3b-23-16106t	1020044.9	1889108.4	704.6	1020044.942	1889108.355	705.026	0.042	-0.045	0.426	
3	R3b-23-16107t	1020031.1	1889100.4	704.5	1020031.105	1889100.389	704.73	0.005	-0.011	0.23	
3	R3b-23-16121t	1020058.6	1889120.3	700.5	1020058.59	1889120.361	700.882	-0.01	0.061	0.382	
3	R3b-23-17244t	1020036.7	1889092.4	705.3	1020036.718	1889092.358	705.617	0.018	-0.042	0.317	
3	R3b-23-17245t	1020030.4	1889087.1	705.4	1020030.343	1889087.17	705.683	-0.057	0.07	0.283	
3	R3b-23-967t	1020050.0	1889149.0	698.1	1020049.966	1889149.032	700.768	-0.034	0.032	2.668	Tronox directed to take all material as targeted
3	R3b-23-968t	1020021.0	1889131.0	700.3	1020021.014	1889131.073	700.721	0.014	0.073	0.421	
3	R3b-23-T100	1019994.8	1889098.8	GS	1019994.821	1889098.705	705.207	0.021	-0.095		
3	R3b-23-T101	1020028.1	1889097.7	704.5	1020028.142	1889097.777	704.899	0.042	0.077	0.399	
3	R3b-23-T102	1020043.4	1889097.2	705.3	1020043.468	1889097.222	705.76	0.068	0.022	0.46	
3	R3b-23-T103	1020030.7	1889093.5	705.3	1020030.763	1889093.58	705.618	0.063	0.08	0.318	
3	R3b-23-T104	1020040.4	1889088.7	705.3	1020040.353	1889088.751	705.709	-0.047	0.051	0.409	
3	R3b-23-T105	1020024.2	1889088.0	705.4	1020024.135	1889088.044	705.81	-0.065	0.044	0.41	
3	R3b-23-T106	1020026.7	1889083.5	705.4	1020026.725	1889083.5	705.721	0.025	0.0	0.321	
3	R3b-23-T107	1020034.2	1889082.6	705.4	1020034.235	1889082.673	705.634	0.035	0.073	0.234	
3	R3b-23-T73	1020054.5	1889144.9	698.1	1020054.546	1889144.889	701.551	0.046	-0.011	3.451	Tronox directed to take all material as targeted
3	R3b-23-T80	1020052.0	1889137.6	701.3	1020052.032	1889137.52	703.903	0.032	-0.08	2.603	Tronox directed to take all material as targeted
3	R3b-23-T88	1020047.1	1889125.3	703.4	1020047.083	1889125.287	703.872	-0.017	-0.013	0.472	
3	R3b-23-T89	1020054.8	1889123.8	700.5	1020054.773	1889123.768	701.834	-0.027	-0.032	1.334	Point on concrete foundation
3	R3b-23-T92	1020061.4	1889117.3	700.5	1020061.363	1889117.32	700.887	-0.037	0.02	0.387	
3	R3b-23-T95	1020054.7	1889110.6	699.9	1020054.646	1889110.787	700.388	-0.054	0.187	0.488	
3	R3b-23-T97	1020047.5	1889105.2	704.6	1020047.478	1889105.142	705.069	-0.022	-0.058	0.469	

Δ Elevation > 0.5 ft Blue

Δ Elevation 0.5 to -0.25 ft Green

Δ Elevation < -0.25 ft Red

Δ Easting/Northing between -0.2 and 0.2 ft Green

Δ Easting/Northing > 0.2 ft Blue

Δ Easting/Northing < -0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Overburden
Reach R3B-23

11/15/2012
Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-23-T98	1020010.6	1889101.8	702.1	1020010.675	1889101.806	702.119	0.075	0.006	0.019	
3	R3b-23-T99	1020019.8	1889100.5	702.1	1020019.738	1889100.544	702.59	-0.062	0.044	0.49	

Δ Elevation > 0.5 ft Blue

Δ Elevation 0.5 to -0.25 ft Green

Δ Elevation < -0.25 ft Red

Δ Easting/Northing between -0.2 and 0.2 ft Green

Δ Easting/Northing > 0.2 ft Blue

Δ Easting/Northing <-0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Overburden
Reach R3B-25

Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-25-16080t	1020124.8	1889183.0	705.7	1020124.744	1889182.98	705.933	-0.056	-0.02	0.233	
3	R3b-25-18466t	1020132.0	1889172.9	703.2	1020132.087	1889172.881	703.61	0.087	-0.019	0.41	
3	R3b-25-T10	1020125.9	1889167.4	703.2	1020125.968	1889167.41	703.518	0.068	0.01	0.318	
3	R3b-25-T4	1020128.9	1889187.0	705.7	1020128.813	1889187.029	705.941	-0.087	0.029	0.241	
3	R3b-25-T6	1020134.6	1889183.2	705.7	1020134.674	1889183.263	706.191	0.074	0.063	0.491	
3	R3b-25-T8	1020138.2	1889178.1	703.2	1020137.976	1889177.964	703.693	-0.224	-0.136	0.493	Point offset due to prism interference with soldier pile
3	R3b-25-T9	1020134.6	1889169.7	703.2	1020134.408	1889169.869	703.693	-0.192	0.169	0.493	

Δ Elevation > 0.5 ft Blue

Δ Elevation 0.5 to -0.25 ft Green

Δ Elevation < -0.25 ft Red

Δ Easting/Northing between -0.2 and 0.2 ft Green

Δ Easting/Northing > 0.2 ft Blue

Δ Easting/Northing <-0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Overburden
Reach R4-2

11/15/2012
Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
4	R4-2-15941t	1020155.5	1889081.3	701.1	1020155.584	1889081.293	701.466	0.084	-0.007	0.366	
4	R4-2-15942t	1020161.6	1889084.6	703.1	1020161.622	1889084.536	703.521	0.022	-0.064	0.421	
4	R4-2-T1	1020138.2	1889091.3	GS	1020138.205	1889091.222	711.045	0.005	-0.078		
4	R4-2-T2	1020161.9	1889088.1	703.1	1020161.927	1889088.242	703.482	0.027	0.142	0.382	
4	R4-2-T3	1020157.1	1889087.3	703.1	1020157.087	1889087.439	703.448	-0.013	0.139	0.348	
4	R4-2-T5	1020165.9	1889085.4	703.1	1020165.832	1889085.428	703.455	-0.068	0.028	0.355	
4	R4-2-T8	1020159.0	1889077.1	701.1	1020159.022	1889077.004	701.44	0.022	-0.096	0.34	

Δ Elevation > 0.5 ft Blue

Δ Elevation 0.5 to -0.25 ft Green

Δ Elevation < -0.25 ft Red

Δ Easting/Northing between -0.2 and 0.2 ft Green

Δ Easting/Northing > 0.2 ft Blue

Δ Easting/Northing <-0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Overburden
Reach R4-5

Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
4	R4-5-16069t	1020092.1	1889047.6	699.8	1020092.2	1889047.615	699.149	0.1	0.015	-0.651	Point was surveyed at existing ground surface
4	R4-5-16070t	1020088.1	1889037.1	700.6	1020088.066	1889037.097	700.828	-0.034	-0.003	0.228	
4	R4-5-16071t	1020083.6	1889023.8	703.8	1020083.586	1889023.849	704.11	-0.014	0.049	0.31	
4	R4-5-375t	1020095.0	1889041.0	696.3	1020094.992	1889040.979	696.78	-0.008	-0.021	0.48	
4	R4-5-4783t	1020085.7	1889006.0	699.1	1020085.648	1889005.934	699.389	-0.052	-0.066	0.289	
4	R4-5-4784t	1020079.4	1889003.4	701.2	1020079.388	1889003.418	701.642	-0.012	0.018	0.442	
4	R4-5-T1	1020092.3	1889051.9	699.8	1020092.249	1889051.975	698.593	-0.051	0.075	-1.207	Point was surveyed at existing ground surface
4	R4-5-T10	1020086.5	1889025.9	703.8	1020086.486	1889025.89	703.872	-0.014	-0.01	0.072	
4	R4-5-T12	1020079.7	1889021.8	703.8	1020079.775	1889021.805	704.248	0.075	0.005	0.448	
4	R4-5-T14	1020083.0	1889009.7	699.1	1020082.961	1889009.769	699.411	-0.039	0.069	0.311	
4	R4-5-T15	1020076.5	1889007.1	701.2	1020076.457	1889006.998	702.099	-0.043	-0.102	0.899	Point on concrete storm sewer outfall
4	R4-5-T16	1020083.4	1889004.0	699.1	1020083.465	1889003.976	699.511	0.065	-0.024	0.411	
4	R4-5-T18	1020076.4	1889001.2	701.2	1020076.474	1889001.141	701.613	0.074	-0.059	0.413	
4	R4-5-T2	1020095.0	1889049.9	699.8	1020095.007	1889049.939	698.575	0.007	0.039	-1.225	Point was surveyed at existing ground surface
4	R4-5-T3	1020087.0	1889046.8	699.8	1020086.975	1889046.847	699.68	-0.025	0.047	-0.12	
4	R4-5-T4	1020097.1	1889042.4	696.3	1020097.139	1889042.328	696.724	0.039	-0.072	0.424	
4	R4-5-T5	1020085.0	1889041.6	700.6	1020084.992	1889041.658	700.582	-0.008	0.058	-0.018	
4	R4-5-T6	1020099.1	1889036.6	696.3	1020099.077	1889036.733	696.666	-0.023	0.133	0.366	
4	R4-5-T7	1020083.1	1889033.5	700.6	1020083.108	1889033.589	701.018	0.008	0.089	0.418	
4	R4-5-T8	1020088.8	1889032.5	700.6	1020088.744	1889032.533	701.009	-0.056	0.033	0.409	

Δ Elevation > 0.5 ft Blue

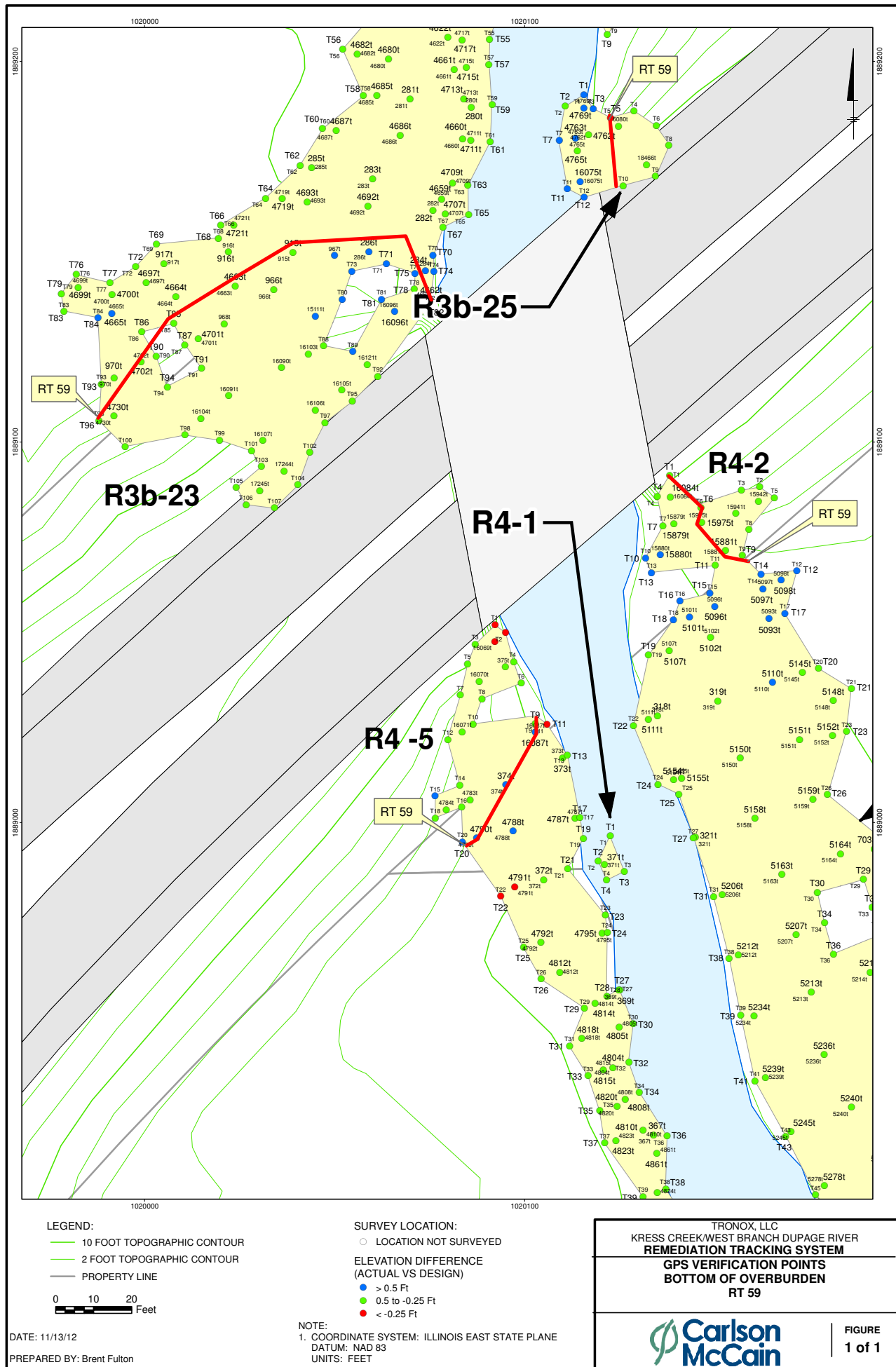
Δ Elevation 0.5 to -0.25 ft Green

Δ Elevation < -0.25 ft Red

Δ Easting/Northing between -0.2 and 0.2 ft Green

Δ Easting/Northing > 0.2 ft Blue

Δ Easting/Northing <-0.2 ft Blue





Appendix D

Notification of Successful GPS
Verification Survey for the Bottoms of
Targeted Material, Route 59 Bridge
Area – All Sections (on attached disc)

Mr. Rick Copeland
West Chicago Environmental Response Trust
800 Weyrauch Street
West Chicago, Illinois 60185

Subject:

**Notification of Successful GPS Verification Survey
For the Bottom of Targeted Material – Route 59 Bridge Area (Reaches 3B and 4)**
Kress Creek/West Branch of the DuPage River Remedial Action Project
DuPage County, Illinois

Dear Rick:

In accordance with Section 2.1.5.2 – Notification in the *Route 59 Bridge Area (Reaches 3B and 4) Final Design/Remedial Action Work Plan* (FD/RA Work Plan) for the above-referenced project, ARCADIS U.S., Inc. (ARCADIS) is pleased to notify the West Chicago Environmental Response Trust (WCERT), the United States Environmental Protection Agency (USEPA) RPM/OSC, the Illinois Emergency Management Agency (IEMA) and the Local Communities' Representatives (WBK Associates and Dupage County) that a successful Global Positioning System (GPS) Verification Survey was performed for the **Bottom of Targeted Material** for the excavation areas listed below in **Reaches 3B and 4** of the Kress Creek/West Branch DuPage River Remedial Action Project located in West Chicago (DuPage County), Illinois on the date noted below:

1. **This GPS Verification Survey Package issued on December 14, 2012 includes the excavation areas listed below in Reaches 3B and 4, and presents the targeted material points achieved and documented in those listed areas in accordance with the Work Plan. These GPS verification points for bottom of targeted material in Reaches 3B and 4 were previously distributed by a series of e-mails entitled "GPS Points Achieved" that were sent from September 25, 2012 through October 9, 2012.**

Excavation Locations: Reaches 3B and 4: Excavation Areas R3B-23, R3B-25, R4-2, and R4-5.

Date of Verification: December 14, 2012

KC 265

ARCADIS
295 Woodcliff Dr., Suite 301
Fairport
New York 14450
Tel 585.385.0090
Fax 585.385.4198
www.arcadis-us.com

Environmental

Date:
December 17, 2012

Contact:
Nathan A. Kernan

Cell Phone:
585.217.3373

Email:
Nathan.Kernan@arcadis-us.com

Our ref:
B0071043.0000

In accordance with Section 2.1.5.1 – Concurrent Verification of the FD/RA Work Plan, ARCADIS sent an email each week with a weekly schedule for the next week that listed the projected locations and dates where excavations and GPS Verification Surveys would be performed. ARCADIS sent those weekly schedule emails to WCERT, Tim Fischer of the USEPA; Adnan Khayyat, Kelly Grahn, and Steve Shafer of IEMA/DNS; and John Wills, Jamie Geils and Lacey Lawrence of WBK Associates providing them the required 24-hour notice that the excavations and GPS Verification Surveys for the bottom of targeted material in the above-listed areas would be completed during those weeks.

The attached Excel file prepared by ARCADIS' surveying subcontractor, Carlson McCain, includes a separate table entitled *Kress Creek/ West Branch DuPage River Verification Points, Bottom of Targeted Material* for each of the 4 excavation areas that were completed in Reaches 3B and 4, in 2012, and the tables list the design, actual, and difference of the survey coordinates and elevations of the verification points in each section.

The attached PDF file prepared by Carlson McCain includes 1 PDF figure numbered 1 of 1. The figure presents a map of the excavation locations of the 4 excavation areas in Reaches 3B and 4 that were completed in 2012, and denote the location of each of the verification points that have been verified.

The verification points listed in these attachments have been achieved and backfilling in the specified excavation locations has proceeded in accordance with the prior preliminary verbal approval of these points based on the field monitoring of the regulators' representatives. Documents pertaining to this survey are available for inspection at the ARCADIS construction office at WCERT's REF Facility.

Sincerely,

ARCADIS



Nathan A. Kernan
Construction Manager

Copies:

Timothy Fischer, USEPA
Mark Krippel, WCERT
Kurt Stimpson, WCERT
Jeffery Williams, Shaw
Adnan Khayyat, IEMA
Kelly Grahm, IEMA
Steve Shafer, REM/IEMA
Lacey Lawrence, WBK Associates
John Wills, WBK Associates
Jamie Geils, DuPage County
Michael Crystal, Severson
Rick Elia, Jr., Severson
Marty Folan, Severson
Ricky Moss, Severson
Vincent Fracassi, Severson
Wade Carlson, Carlson McCain
Mark Gravelding, ARCADIS
Joseph Molina, ARCADIS
Elizabeth Razawich, ARCADIS
Heather Vandewalker, ARCADIS

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Targeted Material
Reach R3B-23

Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-23-15111b	1020044.9	1889133.1	698.3	1020044.859	1889132.962	698.296	-0.041	-0.138	-0.004	
3	R3b-23-16090b	1020036.2	1889119.5	699.1	1020036.135	1889119.527	699.064	-0.065	0.027	-0.036	
3	R3b-23-16091b	1020022.2	1889112.2	699.3	1020022.185	1889112.294	699.286	-0.015	0.094	-0.014	
3	R3b-23-16103b	1020043.2	1889123.2	698.9	1020043.2	1889123.091	698.853	0.0	-0.109	-0.047	
3	R3b-23-16104b	1020014.8	1889106.3	700.6	1020014.715	1889106.298	700.481	-0.085	-0.002	-0.119	
3	R3b-23-16105b	1020051.9	1889113.7	698.9	1020051.96	1889113.733	698.845	0.06	0.033	-0.055	
3	R3b-23-16106b	1020044.9	1889108.4	699.1	1020044.955	1889108.413	698.975	0.055	0.013	-0.125	
3	R3b-23-16107b	1020031.1	1889100.4	702.5	1020031.11	1889100.414	702.276	0.01	0.014	-0.224	
3	R3b-23-16121b	1020058.6	1889120.3	698.5	1020058.673	1889120.239	698.406	0.073	-0.061	-0.094	
3	R3b-23-17244b	1020036.7	1889092.4	702.8	1020036.776	1889092.438	702.675	0.076	0.038	-0.125	
3	R3b-23-17245b	1020030.4	1889087.1	702.9	1020030.446	1889087.128	702.732	0.046	0.028	-0.168	
3	R3b-23-4701b	1020014.1	1889127.2	698.9	1020014.049	1889127.185	698.796	-0.051	-0.015	-0.104	
3	R3b-23-967b	1020050.0	1889149.0	697.1	1020050.033	1889149.068	697.025	0.033	0.068	-0.075	
3	R3b-23-968b	1020021.0	1889131.0	699.3	1020020.986	1889130.954	699.151	-0.014	-0.046	-0.149	
3	R3b-23-B100	1019994.8	1889098.8	702.8	1019994.846	1889098.933	702.771	0.046	0.133	-0.029	
3	R3b-23-B101	1020028.1	1889097.7	702.5	1020028.187	1889097.625	702.819	0.087	-0.075	0.319	Point on Concrete Foundation
3	R3b-23-B102	1020043.4	1889097.2	702.8	1020043.506	1889097.15	702.749	0.106	-0.05	-0.051	
3	R3b-23-B103	1020030.7	1889093.5	702.8	1020030.676	1889093.455	702.936	-0.024	-0.045	0.136	Point on Concrete Foundation
3	R3b-23-B104	1020040.4	1889088.7	702.8	1020040.33	1889088.814	702.518	-0.07	0.114	-0.282	Isolated over excavation of Targeted Material
3	R3b-23-B105	1020024.2	1889088.0	702.9	1020024.197	1889088.085	703.097	-0.003	0.085	0.197	Point on Concrete Foundation
3	R3b-23-B106	1020026.7	1889083.5	702.9	1020026.755	1889083.467	702.756	0.055	-0.033	-0.144	
3	R3b-23-B107	1020034.2	1889082.6	702.9	1020034.103	1889082.756	702.857	-0.097	0.156	-0.043	
3	R3b-23-B73	1020054.5	1889144.9	697.1	1020054.354	1889144.828	696.991	-0.146	-0.072	-0.109	
3	R3b-23-B80	1020052.0	1889137.6	698.3	1020051.933	1889137.564	698.17	-0.067	-0.036	-0.13	
3	R3b-23-B87	1020010.6	1889125.6	698.9	1020010.651	1889125.582	698.88	0.051	-0.018	-0.02	
3	R3b-23-B88	1020047.1	1889125.3	698.9	1020047.088	1889125.275	698.893	-0.012	-0.025	-0.007	
3	R3b-23-B89	1020054.8	1889123.8	698.5	1020054.812	1889123.747	701.757	0.012	-0.053	3.257	Point on Concrete Foundation
3	R3b-23-B91	1020015.0	1889119.3	698.9	1020014.924	1889119.309	698.858	-0.076	0.009	-0.042	

Δ Elevation < -0.25 ft Blue Δ Easting/Northing < or = 0.2 ft Green

Δ Elevation -0.25 to 0.0 ft Green Δ Easting/Northing > 0.2 ft Blue

Δ Elevation > 0.0 ft Red Δ Easting/Northing <-0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Targeted Material
Reach R3B-23

11/15/2012
Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-23-B92	1020061.4	1889117.3	698.5	1020061.386	1889117.329	698.459	-0.014	0.029	-0.041	
3	R3b-23-B94	1020005.9	1889114.6	700.5	1020005.986	1889114.677	700.496	0.086	0.077	-0.004	
3	R3b-23-B95	1020054.7	1889110.6	698.9	1020054.651	1889110.658	698.871	-0.049	0.058	-0.029	
3	R3b-23-B97	1020047.5	1889105.2	699.1	1020047.606	1889105.19	699.015	0.106	-0.01	-0.085	
3	R3b-23-B98	1020010.6	1889101.8	700.6	1020010.698	1889101.876	700.576	0.098	0.076	-0.024	
3	R3b-23-B99	1020019.8	1889100.5	700.6	1020019.727	1889100.473	700.515	-0.073	-0.027	-0.085	

Δ Elevation < -0.25 ft Blue Δ Easting/Northing < or = 0.2 ft Green
 Δ Elevation -0.25 to 0.0 ft Green Δ Easting/Northing > 0.2 ft Blue
 Δ Elevation > 0.0 ft Red Δ Easting/Northing < -0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Targeted Material
Reach R3B-25

11/15/2012
Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
3	R3b-25-16080b	1020124.8	1889183.0	705.2	1020124.869	1889183.032	705.182	0.069	0.032	-0.018	
3	R3b-25-18466b	1020132.0	1889172.9	701.2	1020131.939	1889172.862	701.142	-0.061	-0.038	-0.058	
3	R3b-25-B10	1020125.9	1889167.4	701.2	1020125.962	1889167.449	701.087	0.062	0.049	-0.113	
3	R3b-25-B4	1020128.9	1889187.0	705.2	1020128.911	1889187.026	705.105	0.011	0.026	-0.095	
3	R3b-25-B6	1020134.6	1889183.2	705.2	1020134.582	1889183.236	705.185	-0.018	0.036	-0.015	
3	R3b-25-B8	1020138.2	1889178.1	701.2	1020138.055	1889178.11	700.986	-0.145	0.01	-0.214	
3	R3b-25-B9	1020134.6	1889169.7	701.2	1020134.54	1889169.865	700.769	-0.06	0.165	-0.431	Isolated over excavation of Targeted Material

Δ Elevation < -0.25 ft Blue Δ Easting/Northing < or = 0.2 ft Green
 Δ Elevation -0.25 to 0.0 ft Green Δ Easting/Northing > 0.2 ft Blue
 Δ Elevation > 0.0 ft Red Δ Easting/Northing < -0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Targeted Material
Reach R4-2

Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
4	R4-2-15941b	1020155.5	1889081.3	699.6	1020155.448	1889081.228	699.548	-0.052	-0.072	-0.052	
4	R4-2-15942b	1020161.6	1889084.6	702.1	1020161.673	1889084.674	701.577	0.073	0.074	-0.523	Isolated over excavation of Targeted Material
4	R4-2-B1	1020138.2	1889091.3	696.2	1020138.077	1889091.435	695.719	-0.123	0.135	-0.481	Isolated over excavation of Targeted Material
4	R4-2-B2	1020161.9	1889088.1	702.1	1020161.937	1889088.1	702.072	0.037	0.0	-0.028	
4	R4-2-B3	1020157.1	1889087.3	702.1	1020157.148	1889087.336	701.778	0.048	0.036	-0.322	Isolated over excavation of Targeted Material
4	R4-2-B5	1020165.9	1889085.4	702.1	1020165.967	1889085.449	701.899	0.067	0.049	-0.201	
4	R4-2-B8	1020159.0	1889077.1	699.6	1020159.12	1889077.033	699.515	0.12	-0.067	-0.085	

Δ Elevation < -0.25 ft Blue Δ Easting/Northing < or = 0.2 ft Green

Δ Elevation -0.25 to 0.0 ft Green Δ Easting/Northing > 0.2 ft Blue

Δ Elevation > 0.0 ft Red Δ Easting/Northing <-0.2 ft Blue

KRESS CREEK / WEST BRANCH DUPAGE RIVER VERIFICATION POINTS
Bottom of Targeted Material
Reach R4-5

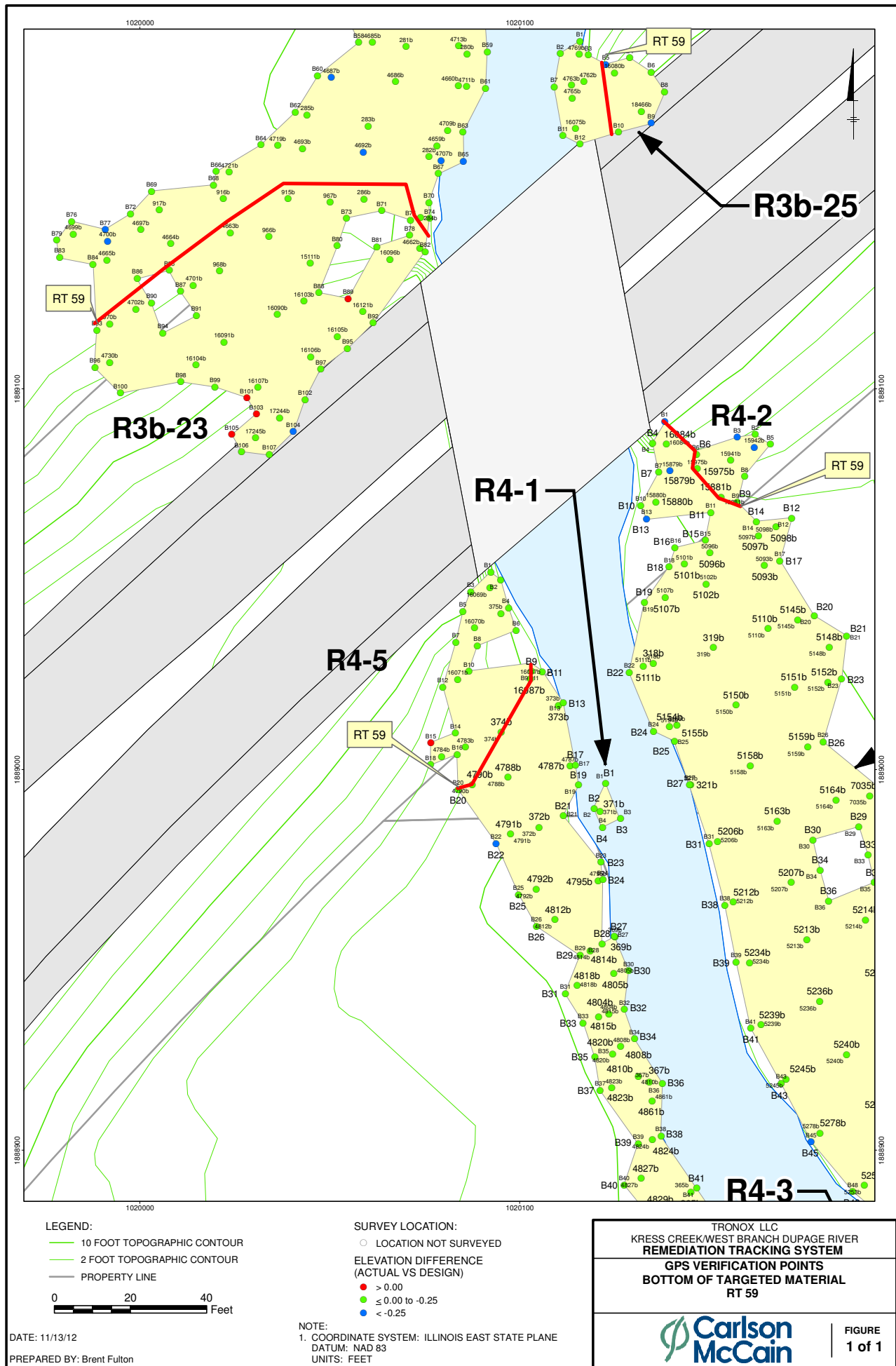
Survey Instrument: Trimble S6
Environmental Scientist: Brent Fulton

DESIGN					ACTUAL			DATA COMPARISON			COMMENTS
Area	Name	Easting	Northing	Elevation	Easting	Northing	Elevation	D Easting	D Northing	D Elevation	
4	R4-5-16069b	1020092.1	1889047.6	696.3	1020092.091	1889047.695	696.061	-0.009	0.095	-0.239	
4	R4-5-16070b	1020088.1	1889037.1	697.6	1020088.044	1889037.243	697.56	-0.056	0.143	-0.04	
4	R4-5-16071b	1020083.6	1889023.8	701.8	1020083.617	1889023.72	701.554	0.017	-0.08	-0.246	
4	R4-5-375b	1020095.0	1889041.0	695.8	1020094.999	1889041.004	695.603	-0.001	0.004	-0.197	
4	R4-5-4783b	1020085.7	1889006.0	698.1	1020085.675	1889005.933	697.96	-0.025	-0.067	-0.14	
4	R4-5-4784b	1020079.4	1889003.4	700.2	1020079.35	1889003.422	700.072	-0.05	0.022	-0.128	
4	R4-5-B1	1020092.3	1889051.9	696.3	1020092.336	1889051.828	696.214	0.036	-0.072	-0.086	
4	R4-5-B10	1020086.5	1889025.9	701.8	1020086.581	1889025.887	701.556	0.081	-0.013	-0.244	
4	R4-5-B12	1020079.7	1889021.8	701.8	1020079.636	1889021.755	701.755	-0.064	-0.045	-0.045	
4	R4-5-B14	1020083.0	1889009.7	698.1	1020083.035	1889009.651	698.056	0.035	-0.049	-0.044	
4	R4-5-B15	1020076.5	1889007.1	700.2	1020076.545	1889007.041	702.156	0.045	-0.059	1.956	Point on concrete storm sewer outfall
4	R4-5-B16	1020083.4	1889004.0	698.1	1020083.497	1889004.023	697.994	0.097	0.023	-0.106	
4	R4-5-B18	1020076.4	1889001.2	700.2	1020076.48	1889001.324	700.158	0.08	0.124	-0.042	
4	R4-5-B2	1020095.0	1889049.9	696.3	1020094.963	1889049.821	696.099	-0.037	-0.079	-0.201	
4	R4-5-B3	1020087.0	1889046.8	696.3	1020087.027	1889046.756	696.228	0.027	-0.044	-0.072	
4	R4-5-B4	1020097.1	1889042.4	695.8	1020097.041	1889042.42	695.57	-0.059	0.02	-0.23	
4	R4-5-B5	1020085.0	1889041.6	697.6	1020084.948	1889041.531	697.585	-0.052	-0.069	-0.015	
4	R4-5-B6	1020099.1	1889036.6	695.8	1020099.046	1889036.537	695.734	-0.054	-0.063	-0.066	
4	R4-5-B7	1020083.1	1889033.5	697.6	1020083.17	1889033.491	697.439	0.07	-0.009	-0.161	
4	R4-5-B8	1020088.8	1889032.5	697.6	1020088.808	1889032.459	697.537	0.008	-0.041	-0.063	

Δ Elevation < -0.25 ft Blue Δ Easting/Northing < or = 0.2 ft Green

Δ Elevation -0.25 to 0.0 ft Green Δ Easting/Northing > 0.2 ft Blue

Δ Elevation > 0.0 ft Red Δ Easting/Northing <-0.2 ft Blue



DATE: 11/13/12

PREPARED BY: Brent Fulton

NOTE:
1. COORDINATE SYSTEM: ILLINOIS EAST STATE PLANE
DATUM: NAD 83
UNITS: FEET



Appendix E

Water Column Monitoring Data
Summary for Route 59 Bridge Area
(on attached disc)

Appendix E

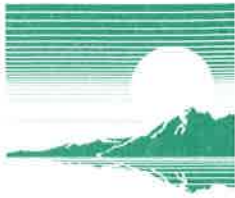
Water Column Monitoring Data Summary for Route 59 Bridge Area

Date	Reach	Time	IL-59 Upstream	IL-59 Downstream	Downstream - Upstream Δ NTU
10/1/12	IL-59 Bridge	AM	No in-river work performed, no sample required.		
		PM	No in-river work performed, no sample required.		
10/2/12	IL-59 Bridge	AM	No in-river work performed, no sample required.		
		PM	No in-river work performed, no sample required.		
10/3/12	IL-59 Bridge	AM	No in-river work performed, no sample required.		
		PM	No in-river work performed, no sample required.		
10/4/12	IL-59 Bridge	AM	40.7	11.2	-29.5
		PM	52.5	21.2	-31.3
10/5/12	IL-59 Bridge	AM	17.3	14.8	-2.5
		PM	16.5	38.2	21.7
10/6/12	IL-59 Bridge	AM	24.9	24.2	-0.7
		PM	31.3	35.2	3.9
10/7/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/8/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/9/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/10/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/11/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/12/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/13/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/14/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/15/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/16/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/17/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/18/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/19/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/20/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/21/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/22/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/23/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/24/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/25/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/26/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/27/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/28/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/29/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/30/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		
10/31/12	IL-59 Bridge	N/A	No in-river work performed, no sample required.		



Appendix F

Sampling Data Reusable Overburden
for Route 59 Bridge Area (on
attached disc)



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

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October 05, 2012

Mr. Vincent Fracassi
SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 Lockport Road
Niagara Falls, NY 14305

Project ID: 1045
First Environmental File ID: 12-5184
Date Received: October 04, 2012

Dear Mr. Vincent Fracassi:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002902: effective 03/08/2012 through 02/28/2013.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

Neal Cleghorn
Project Manager



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Case Narrative

SEVENSON ENVIRONMENTAL SERVICES, INC.

Project ID: **1045**

First Environmental File ID: **12-5184**

Date Received: **October 04, 2012**

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



**First
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IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.
Project ID: 1045
Sample ID: IL 59 OB-001
Sample No: 12-5184-001

Date Collected: 10/04/12
Time Collected: 10:42
Date Received: 10/04/12
Date Reported: 10/05/12

Results are reported on a dry weight basis.

Analyte	Result	R.L.	Units	Flags
Solids, Total Method: 2540B				
Analysis Date: 10/04/12				
Total Solids	86.18		%	
Volatile Organic Compounds Method: 5035A/8260B				
Analysis Date: 10/05/12				
Acetone	< 100	100	ug/kg	
Benzene	< 5.0	5.0	ug/kg	
Bromodichloromethane	< 5.0	5.0	ug/kg	
Bromoform	< 5.0	5.0	ug/kg	
Bromomethane	< 10.0	10.0	ug/kg	
2-Butanone (MEK)	< 100	100	ug/kg	
Carbon disulfide	< 5.0	5.0	ug/kg	
Carbon tetrachloride	< 5.0	5.0	ug/kg	
Chlorobenzene	< 5.0	5.0	ug/kg	
Chlorodibromomethane	< 5.0	5.0	ug/kg	
Chloroethane	< 10.0	10.0	ug/kg	
Chloroform	< 5.0	5.0	ug/kg	
Chloromethane	< 10.0	10.0	ug/kg	
1,1-Dichloroethane	< 5.0	5.0	ug/kg	
1,2-Dichloroethane	< 5.0	5.0	ug/kg	
1,1-Dichloroethene	< 5.0	5.0	ug/kg	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/kg	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/kg	
1,2-Dichloropropane	< 5.0	5.0	ug/kg	
cis-1,3-Dichloropropene	< 4.0	4.0	ug/kg	
trans-1,3-Dichloropropene	< 4.0	4.0	ug/kg	
Ethylbenzene	< 5.0	5.0	ug/kg	
2-Hexanone	< 10.0	10.0	ug/kg	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/kg	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/kg	
Methylene chloride	< 20.0	20.0	ug/kg	
Styrene	< 5.0	5.0	ug/kg	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/kg	
Tetrachloroethene	< 5.0	5.0	ug/kg	
Toluene	< 5.0	5.0	ug/kg	
1,1,1-Trichloroethane	< 5.0	5.0	ug/kg	
1,1,2-Trichloroethane	< 5.0	5.0	ug/kg	
Trichloroethene	< 5.0	5.0	ug/kg	



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Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.
Project ID: 1045
Sample ID: IL 59 OB-001
Sample No: 12-5184-001

Date Collected: 10/04/12
Time Collected: 10:42
Date Received: 10/04/12
Date Reported: 10/05/12

Results are reported on a dry weight basis.

Results are reported on a dry weight basis.				
Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5035A/8260B		
Analysis Date: 10/05/12				
Vinyl acetate	< 10.0	10.0	ug/kg	
Vinyl chloride	< 10.0	10.0	ug/kg	
Xylene, Total	< 5.0	5.0	ug/kg	

Semi-Volatile Compounds		Method: 8270C	Preparation Method 3540C	
Analysis Date: 10/05/12			Preparation Date: 10/04/12	
Acenaphthene	< 330	330	ug/kg	
Acenaphthylene	< 330	330	ug/kg	
Anthracene	551	330	ug/kg	
Benzidine	< 330	330	ug/kg	
Benzo(a)anthracene	729	330	ug/kg	
Benzo(a)pyrene	659	90	ug/kg	
Benzo(b)fluoranthene	670	330	ug/kg	
Benzo(k)fluoranthene	584	330	ug/kg	
Benzo(ghi)perylene	410	330	ug/kg	
Benzoic acid	< 330	330	ug/kg	
Benzyl alcohol	< 330	330	ug/kg	
bis(2-Chloroethoxy)methane	< 330	330	ug/kg	
bis(2-Chloroethyl)ether	< 330	330	ug/kg	
bis(2-Chloroisopropyl)ether	< 330	330	ug/kg	
bis(2-Ethylhexyl)phthalate	< 330	330	ug/kg	
4-Bromophenyl phenyl ether	< 330	330	ug/kg	
Butyl benzyl phthalate	< 330	330	ug/kg	
Carbazole	< 330	330	ug/kg	
4-Chloroaniline	< 330	330	ug/kg	
4-Chloro-3-methylphenol	< 330	330	ug/kg	
2-Chloronaphthalene	< 330	330	ug/kg	
2-Chlorophenol	< 330	330	ug/kg	
4-Chlorophenyl phenyl ether	< 330	330	ug/kg	
Chrysene	746	330	ug/kg	
Dibenzo(a,h)anthracene	128	90	ug/kg	
Dibenzofuran	< 330	330	ug/kg	
1,2-Dichlorobenzene	< 330	330	ug/kg	
1,3-Dichlorobenzene	< 330	330	ug/kg	
1,4-Dichlorobenzene	< 330	330	ug/kg	
3,3'-Dichlorobenzidine	< 660	660	ug/kg	
2,4-Dichlorophenol	< 330	330	ug/kg	



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Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.

Date Collected: 10/04/12

Project ID: 1045

Time Collected: 10:42

Sample ID: IL 59 OB-001

Date Received: 10/04/12

Sample No: 12-5184-001

Date Reported: 10/05/12

Results are reported on a dry weight basis.

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds		Preparation Method 3540C		
Analysis Date: 10/05/12		Preparation Date: 10/04/12		
Method: 8270C				
Diethyl phthalate	< 330	330	ug/kg	
2,4-Dimethylphenol	< 330	330	ug/kg	
Dimethyl phthalate	< 330	330	ug/kg	
Di-n-butyl phthalate	< 330	330	ug/kg	
4,6-Dinitro-2-methylphenol	< 1,600	1600	ug/kg	
2,4-Dinitrophenol	< 1,600	1600	ug/kg	
2,4-Dinitrotoluene	< 250	250	ug/kg	
2,6-Dinitrotoluene	< 260	260	ug/kg	
Di-n-octylphthalate	< 330	330	ug/kg	
Fluoranthene	2,010	330	ug/kg	
Fluorene	466	330	ug/kg	
Hexachlorobenzene	< 330	330	ug/kg	
Hexachlorobutadiene	< 330	330	ug/kg	
Hexachlorocyclopentadiene	< 330	330	ug/kg	
Hexachloroethane	< 330	330	ug/kg	
Indeno(1,2,3-cd)pyrene	408	330	ug/kg	
Isophorone	< 330	330	ug/kg	
2-Methylnaphthalene	< 330	330	ug/kg	
2-Methylphenol	< 330	330	ug/kg	
3 & 4-Methylphenol	< 330	330	ug/kg	
Naphthalene	< 330	330	ug/kg	
2-Nitroaniline	< 1,600	1600	ug/kg	
3-Nitroaniline	< 1,600	1600	ug/kg	
4-Nitroaniline	< 1,600	1600	ug/kg	
Nitrobenzene	< 260	260	ug/kg	
2-Nitrophenol	< 1,600	1600	ug/kg	
4-Nitrophenol	< 1,600	1600	ug/kg	
n-Nitrosodi-n-propylamine	< 90	90	ug/kg	
n-Nitrosodimethylamine	< 330	330	ug/kg	
n-Nitrosodiphenylamine	< 330	330	ug/kg	
Pentachlorophenol	< 330	330	ug/kg	
Phenanthrene	1,900	330	ug/kg	
Phenol	< 330	330	ug/kg	
Pyrene	1,140	330	ug/kg	
Pyridine	< 330	330	ug/kg	
1,2,4-Trichlorobenzene	< 330	330	ug/kg	



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Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.
Project ID: 1045
Sample ID: IL 59 OB-001
Sample No: 12-5184-001

Date Collected: 10/04/12
Time Collected: 10:42
Date Received: 10/04/12
Date Reported: 10/05/12

Results are reported on a dry weight basis.

Analyte	Result	R.L.	Units	Flags
Semi-Volatile Compounds				
Method: 8270C		Preparation Method 3540C		
Analysis Date: 10/05/12		Preparation Date: 10/04/12		
2,4,5-Trichlorophenol	< 330	330	ug/kg	
2,4,6-Trichlorophenol	< 330	330	ug/kg	
Pesticides				
Method: 8081A		Preparation Method 3540C		
Analysis Date: 10/05/12		Preparation Date: 10/04/12		
Aldrin	< 8.0	8.0	ug/kg	
alpha-BHC	< 2.0	2.0	ug/kg	
beta-BHC	< 8.0	8.0	ug/kg	
delta-BHC	< 8.0	8.0	ug/kg	
gamma-BHC (Lindane)	< 8.0	8.0	ug/kg	
alpha-Chlordane	< 8.0	80.0	ug/kg	
gamma-Chlordane	< 80.0	80.0	ug/kg	
4,4'-DDD	< 16.0	16.0	ug/kg	
4,4'-DDE	< 16.0	16.0	ug/kg	
4,4'-DDT	< 16.0	16.0	ug/kg	
Dieldrin	< 16.0	16.0	ug/kg	
Endosulfan I	< 8.0	8.0	ug/kg	
Endosulfan II	< 16.0	16.0	ug/kg	
Endosulfan sulfate	< 16.0	16.0	ug/kg	
Endrin	< 16.0	16.0	ug/kg	
Endrin aldehyde	< 16.0	16.0	ug/kg	
Endrin ketone	< 16.0	16.0	ug/kg	
Heptachlor	< 8.0	8.0	ug/kg	
Heptachlor epoxide	< 8.0	8.0	ug/kg	
Methoxychlor	< 80.0	80	ug/kg	
Toxaphene	< 160	160	ug/kg	
Total Metals				
Method: 6010B		Preparation Method 3050B		
Analysis Date: 10/05/12		Preparation Date: 10/05/12		
Antimony	< 1.0	1.0	mg/kg	
Arsenic	9.9	0.2	mg/kg	
Beryllium	0.7	0.1	mg/kg	
Cadmium	1.9	0.1	mg/kg	
Chromium	17.8	0.1	mg/kg	
Copper	23.4	0.1	mg/kg	
Lead	33.3	0.2	mg/kg	
Nickel	18.1	0.1	mg/kg	



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Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.

Date Collected: 10/04/12

Project ID: 1045

Time Collected: 10:42

Sample ID: IL 59 OB-001

Date Received: 10/04/12

Sample No: 12-5184-001

Date Reported: 10/05/12

Results are reported on a dry weight basis.

Analyte	Result	R.L.	Units	Flags
Total Metals				
Method: 6010B		Preparation Method 3050B		
Analysis Date: 10/05/12		Preparation Date: 10/05/12		
Selenium	< 0.2	0.2	mg/kg	
Silver	< 0.1	0.1	mg/kg	
Thallium	< 1.0	1.0	mg/kg	
Zinc	123	0.5	mg/kg	
Total Mercury				
Method: 7470A				
Analysis Date: 10/05/12				
Mercury	< 0.05	0.05	mg/kg	
Cyanide, Amenable				
Method: 9010B/9014				
Analysis Date: 10/04/12				
Cyanide, Amenable	< 0.10	0.10	mg/kg	
pH @ 25°C, 1:2				
Method: 9045C				
Analysis Date: 10/05/12 13:05				
pH @ 25°C, 1:2	8.42	Units		



Page 1 of 1

Company Name: SEVENSON ENV. SERVICES
Street Address: 800 WERRAUCH STREET
City: WEST CHICAGO State: IL Zip: 60185
Phone: 630-293-7916 FAX: 630-293-7719 e-mail: VFRACASSI@SEVENSON.COM
Send Report To: VINCENT FRACASSI Via: Fax ☒ e-mail ☒
Sampled By: D-COBLE

Project I.D.: 1045

P.O. #.: ~~86~~ 1045

DWC

Matrix Codes: S = Soil W = Water O = Other

Date/Time Taken

Sample Description

Matrix

1054-12/1042	TL59	OB-001
--------------	------	--------

- ✗ VOLATILES
- ✗ SEMI-VOLATILES
- ✗ PESTICIDES
- ✗ METALS
- ✗ AMENABLE CYANIDE
- ✗ PH

Comments
composit

Lab I.D.
12-5/84-001

FOR LAB USE ONLY:

Cooler Temperature: 0.1-6°C Yes ☒ No. ☐ °C

Sample Refrigerated: Yes__ No__

Preservation Requirements Met: ☐ Yes ☐ No

Received within 6 hrs. of collection: ✓
Ice Present: Yes No

Refrigerator Temperature: _____ °C
5035 Vials Frozen: Yes___ No___

Need to meet: IL TACO ☐ IN RISC ☐

Notes and Special Instructions:

Relinquished BY:

Date/Time 10-4-12 10:35

Received By:

Date/Time

10/4/2 1053

Relinquished By:

Date/Time:

Received By:

Date/Time

[illegible]

Rev. 6/12



Appendix G

Imported Material Sampling Data (on
attached disc)

Transmittal Letter

To:
 Rick Copeland, Project Manager
 West Chicago Environmental Response Trust
 800 Weyrauch Street
 West Chicago, IL 60185

Copies:
 Heather VanDewalker, ARCADIS
 Marty Folan, Severson

KC 243

From:
 Nathan Kernan



Date:
 October 6, 2012

Subject:
 Kress Creek/West Branch Remedial Action
 Project – Reach 8

ARCADIS Project No.:
 B0071043.0000

We are sending you:

☒ Attached

☐ Under Separate Cover Via _____ the Following Items:

☐ Shop Drawings

☐ Plans

☐ Specifications

☐ Change Order

☐ Prints

☐ Samples

☐ Copy of Letter

☐ Reports

☒ Other: Required Submittals

Copies	Date	Drawing No.	Rev.	Description	Action*
1	10/5/2012	SES Trans. 088		Analytical results for Lafarge – Elburn FM-20/CA-18 material	AS

Action*

☐ A Approved

☐ CR Correct and Resubmit

☐ Resubmit _____ Copies

☐ AN Approved As Noted

☐ F File

☐ Return _____ Copies

☒ AS As Requested

☐ FA For Approval

☐ Review and Comment

☐ Other: _____

Mailing Method

☐ U.S. Postal Service 1st Class

☒ Courier/Hand Delivery

☐ FedEx Priority Overnight

☐ FedEx 2-Day Delivery

☐ Certified/Registered Mail

☐ United Parcel Service (UPS)

☐ FedEx Standard Overnight

☐ FedEx Economy

☐ Other: _____

Comments: Chemical, Gamma Spectroscopy and geotechnical results for backfill material used at the Route 59 Bridge Area (Reaches 3B and 4).



SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 LOCKPORT RD.
NIAGARA FALLS, NY 14305
(716) 284-0431 Fax (716) 284-7645

Kress Creek Remedial Action
West Chicago, IL

LETTER OF TRANSMITTAL

To: Nathan Kernan
ARCADIS

Date: 10/5/2012
Transmittal No.: 88
Job Number: B0071043.0000
RE: Lafarge Backfill Material analytical and
radiological results

Address Reply To: Vincent Fracassi
800 Weyrauch Street
West Chicago, IL 60185

We Are Sending the Following:

☒ Attached
☐ Under Separate Cover Via

☐ Specifications
☐ Certificates Of Compliance
☐ Manufacturer Instructions
☐ O&M Manuals and Data
☐ Electronic Copy

☐ Prints
☐ Drawings
☐ Subcontract
☐ Copy of Letter
☐ Records

☐ Work Plans
☐ Samples
☐ Report
☒ Submittals
☐ Other: _____

Copies	Date	Spec. Number	Description
1	10/1/2012	Section No. 02200.1.6.C	Lafarge Backfill Material Chemical Analysis Results
1	9/27/2012	Section No. 02200.1.6.C	Lafarge Backfill Material Gamma Spectroscopy Analysis Results
2	9/20/2012	Section No. 02200.1.6.C	Lafarge Backfill Material Proctor (Standard and Modified) Analysis Results
2	9/20/2012	Section No. 02200.1.6.C	Lafarge Backfill Material Gradation Analysis Results

These are Transmitted as Checked Below:

☒ For Approval
☐ For Your Use
☐ As Requested
☐ For Review and Comment

☐ Approved as Submitted
☐ Approved as Noted
☐ Returned for Corrections
☐ Issued for Construction

☐ Resubmit ___ Copies for Approval
☐ Submit ___ Copies for Distribution
☐ Return ___ Corrected Prints
☐ Preliminary/Reference Only
☐ Prints Returned After Loan
☐ Other _____

For Bids Due: _____

Remarks:

Lafarge Backfill (FM-20/CA-18) Material for Reach 3B & 4 (Route 59).

Any Questions or comments please call Martin Folan or myself at 630-293-7926.

Copy To: _____ Sent By: Vincent Fracassi

Received By: _____



**First
Environmental
Laboratories, Inc.**

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

October 01, 2012

Mr. Vincent Fracassi
SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 Lockport Road
Niagara Falls, NY 14305

Project ID: 1045 PO# 266004
First Environmental File ID: 12-4969
Date Received: September 27, 2012

Dear Mr. Vincent Fracassi:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002902: effective 03/08/2012 through 02/28/2013.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,



Stan Zaworski
Project Manager



**First
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Laboratories, Inc.**

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Case Narrative

SEVENSON ENVIRONMENTAL SERVICES, INC.

Project ID: 1045 PO# 266004

First Environmental File ID: 12-4969

Date Received: September 27, 2012

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



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Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.
Project ID: 1045 PO# 266004
Sample ID: FM-20-001
Sample No: 12-4969-001

Date Collected: 09/27/12
Time Collected: 6:45
Date Received: 09/27/12
Date Reported: 10/01/12

Results are reported on an "as received" basis.

Analyte	Result	R.L.	Units	Flags
Percent Total Solids Method: 2540B				
Analysis Date: 09/28/12				
Total Solids	95.96		%	
Cyanide, Reactive Method: 7.3.3.2.				
Analysis Date: 09/27/12				
Cyanide, Reactive	< 10	10	mg/kg	
pH @ 25°C, 1:2 Method: 9045C				
Analysis Date: 09/28/12 16:15				
pH @ 25°C, 1:2	9.06		Units	
Sulfide, Reactive Method: 7.3.4.2.				
Analysis Date: 09/27/12				
Sulfide, Reactive	< 10	10	mg/kg	
Flash Point - Open Cup Method: 1010M				
Analysis Date: 10/01/12				
Flash Point - Open Cup	No Flash @		212 °F	
Paint Filter Test Method: 9095B				
Analysis Date: 10/01/12				
Paint Filter Test	No Liquid			
TCLP Volatiles Method 1311/8260B Method: 5030B/8260B				
Analysis Date: 10/01/12				
Benzene	< 0.050	0.050	mg/L	
2-Butanone (MEK)	< 0.100	0.100	mg/L	
Carbon tetrachloride	< 0.050	0.050	mg/L	
Chlorobenzene	< 0.050	0.050	mg/L	
Chloroform	< 0.050	0.050	mg/L	
1,2-Dichloroethane	< 0.050	0.050	mg/L	
1,1-Dichloroethene	< 0.050	0.050	mg/L	
Tetrachloroethene	< 0.050	0.050	mg/L	
Trichloroethene	< 0.050	0.050	mg/L	
Vinyl chloride	< 0.100	0.100	mg/L	
TCLP Semi-Volatiles Method 1311/8270C Method: 3510C/8270C				
Analysis Date: 09/28/12				
1,4-Dichlorobenzene	< 0.10	0.10	mg/L	
2,4-Dinitrotoluene	< 0.10	0.10	mg/L	
Hexachlorobenzene	< 0.10	0.10	mg/L	
Hexachlorobutadiene	< 0.10	0.10	mg/L	
Preparation Method 3510C				
Preparation Date: 09/28/12				



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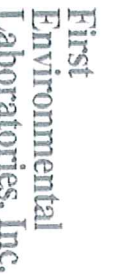
Analytical Report

Client: SEVENSON ENVIRONMENTAL SERVICES, INC.
Project ID: 1045 PO# 266004
Sample ID: FM-20-001
Sample No: 12-4969-001

Date Collected: 09/27/12
Time Collected: 6:45
Date Received: 09/27/12
Date Reported: 10/01/12

Results are reported on an "as received" basis.

Analyte	Result	R.L.	Units	Flags
TCLP Semi-Volatiles Method 1311/8270C Method: 3510C/8270C				
Analysis Date: 09/28/12		Preparation Method 3510C Preparation Date: 09/28/12		
Hexachloroethane	< 0.10	0.10	mg/L	
2-Methylphenol	< 0.10	0.10	mg/L	
3 & 4-Methylphenol	< 0.10	0.10	mg/L	
Nitrobenzene	< 0.10	0.10	mg/L	
Pentachlorophenol	< 0.50	0.50	mg/L	
Pyridine	< 0.50	0.50	mg/L	
2,4,5-Trichlorophenol	< 0.10	0.10	mg/L	
2,4,6-Trichlorophenol	< 0.10	0.10	mg/L	
TCLP Pesticides Method 1311/8081A Method: 3510C/8081A				
Analysis Date: 10/01/12		Preparation Method 3510C Preparation Date: 09/28/12		
Endrin	< 0.001	0.001	mg/L	
gamma-BHC (Lindane)	< 0.005	0.005	mg/L	
Heptachlor	< 0.005	0.005	mg/L	
Heptachlor epoxide	< 0.005	0.005	mg/L	
Methoxychlor	< 0.005	0.005	mg/L	
Toxaphene	< 0.010	0.01	mg/L	
Chlordane (Total)	< 0.005	0.005	mg/L	
TCLP Herbicides Method 1311 Method: 8321A				
Analysis Date: 10/01/12				
2,4-D	< 0.5	0.5	mg/L	S
Silvex (2,4,5-TP)	< 0.5	0.5	mg/L	S
TCLP Metals Method 1311 Method: 6010B				
Analysis Date: 09/28/12		Preparation Method 3010A Preparation Date: 09/28/12		
Arsenic	0.006	0.002	mg/L	
Barium	< 1.0	1.0	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	< 0.001	0.001	mg/L	
Lead	< 0.002	0.002	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
TCLP Mercury Method 1311/7470A Method: 7470A				
Analysis Date: 09/28/12				
Mercury	< 0.0005	0.0005	mg/L	



CHAIN OF CUSTODY RECORD

Company Name: SEVENSON ENV. SERVICES

Street Address: 800 WEYRAUEH STREET

City: WEST CHICAGO State: IL Zip: 60185

Phone: 630-293-7911 Fax: 630-293-7719
e-mail: VFRA@seu.edu

Phone: 602-431-1111 FAX: 602-431-1111
 Send Report To: VINCENT FRANK ASSI Via: Fax ☒ e-mail ☒

Sampled By: Duc

First Environmental Laboratories
1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
E-mail: frstinfo@frstenv.com
EPA Certification #100292

IEPA Certification #100292

Analyses

Project I.D.: 1045

P.O. #: 266 004

Matrix Codes: S = Soil W = Water O = Other

[illegible]

FOR LAB USE ONLY:

Cooler Temperature: 0.1-6°C Yes ☒ No. ☐ 7 °C

Received within 6 hrs. of collection:

Ice Present: Yes ☒ No ☐ γ

Sample Refrigerated: Yes__ No__

Refrigerator Temperature: _____ °C

5035 Vials Frozen: Yes__ No__

Freezer Temperature: _____ °C

Preservation Requirements Met: ☒ Yes ☐ No

A

Need to meet: IL. TACO ☐ IN. RISC ☐

Notes and Special Instructions: Exploit Analysis

Expidite Analysis

Relinquished By: D W Coker Date/Time 9-27-12 1800

Date/Time 0800

Received By: MS

Date/Time 9/27/12 01:30

Relinquished By: _____ Date/Time _____

Date/Time:

Received By:

Date/Time



6312 West Oakton Street
Morton Grove, IL 60053-2723
847-965-1999
Fax 847-965-1991

September 27, 2012

Douglas Coble, RSO
West Chicago Remedial Action
Sevenson Environmental Services, Inc.
800 Weyrauch Street
West Chicago, IL 60185

RE: SAMPLES 120926FM-20 Lafarge Elburn

Dear Mr. Coble:

Gamma spectroscopy analysis reports for the above referenced samples, received on September 27, 2012, are attached. The radionuclides of interest, Radium 228 (Ra-228), Thorium 232 (Th-232), Ra-226, and Th-230 are difficult to identify and quantify directly with reasonable counting intervals.

Ra-228 from the thorium series emits no significant photons. Th-232 from the thorium series emits photons with very low abundances. Ra-226 from the uranium series has only one significant photon at 186.21 keV and its abundance is slightly greater than 0.03. Analysis for Ra-226 using this energy is difficult because of the possible presence of U-235 which has an interfering 185.72 keV photon with a 0.54 abundance. Pa-234 also emits an interfering 186.0 keV photon. Th-230 from the uranium series has no significant photons. These properties make direct identification of the above radionuclides unlikely in practical situations.

The concentrations of surrogates with more abundant high energy photons usually represent the concentration of Ra-228, Th-232, Ra-226, and Th-230. Ac-228, in the thorium series, may be used as a surrogate for Ra-228 and Th-232. Bismuth 214 (Bi-214) in the uranium series, may be used as a surrogate for Ra-226 and Th-230.

The successful use of surrogates depends upon the radionuclides in each series being in equilibrium. In the thorium series, Ac-228 usually is in equilibrium with Ra-228 and Th-232 when

Douglas Coble
September 27, 2012
Page 2

RSSI

collected. The equilibrium in the uranium series, between Ra-226 and its surrogates, may be disturbed when samples are collected. Rn-222, a gas, can be released. Pb-214 and Bi-214 return to equilibrium with Ra-226 in a sample after an ingrowth period. The disequilibrium caused by the release of Rn-222 is minimized in heavy wet soils and may be disregarded when past analyses demonstrated that equilibrium was not disturbed. The equilibrium factor between Th-230 and Ra-226 must be known to use the concentration of Bi-214 as a surrogate for Th-230.

Please call me at 847-965-1999 if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Jeremy Kieser', with a stylized, flowing script.

Jeremy Kieser

attachment

CHAIN OF CUSTODY RECORD-ENVIRONMENTAL SAMPLES KM-4775

FACILITY		SAMPLING FIRM				SAMPLE	
NAME	NAME	SEVENSON ENVIRONMENTAL SERVICES (SES)				<input type="checkbox"/> Effluent <input type="checkbox"/> Groundwater <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Surface Water	
ADDRESS	ADDRESS	800 Weyrauch St. West Chicago, IL 60185					
800 Weyrauch St.	SIGNATURE						
West Chicago, IL 60185							

NO.	SAMPLE ID	DATE	TIME	WEATHER		SAMPLE TYPE AND METHOD				TIME CASING CLEARED	NO. OF CONTAINERS	ANALYSIS REQUIRED	REMARKS
				TEMP.	PREC.	COMP.	GRAB	MECH.	MAN.				
1	120926FM-20 Lafarge Elburn	9/26/2012	1430	70	0		X		X		1	γ SPEC	NONE
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													

RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	DATE	TIME	ADDITIONAL REMARKS
<i>[Signature]</i>	<i>[Signature]</i>	9/27/12		Off site borrow sample from Lafarge Quarry in Elburn Illinois. FM-20 aggregate
RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	DATE	TIME	
RELINQUISHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	DATE	TIME	
DISPATCHED BY (SIGNATURE)	RECEIVED BY (SIGNATURE)	DATE	TIME	
<i>[Signature]</i>		9-27-12	0836	
CARRIER	LABORATORY			
World Courier Ground	RSSI			
ADDRESS	ADDRESS			
1800 Elmhurst Rd., Elk Grove Village, IL 60007	6312 West Oakton St.			
METHOD OF SHIPMENT				
Courier Service	Morton Grove, IL 60053 Phone (847) 965-1991			
		<input type="checkbox"/> Yes <input type="checkbox"/> No, explain above		

ALL ANALYSIS PERFORMED BY EPA APPROVED PROCEDURES

Page 1 of 1

**LICENSE IL-01429-01
THIS SHIPMENT MUST COMPLY
WITH DOT REGULATIONS
CALL RSSI BEFORE SENDING
ANY SAMPLES**

LICENSE IL-01429-01

**THIS SHIPMENT MUST COMPLY
WITH DOT REGULATIONS**

**CALL RSSI BEFORE SENDING
ANY SAMPLES**

PROCESS (if applicable) Composite Sampling

[illegible]

*Specify: Wipe test, Air sample, Bulk Sample, Soil, Water, Other
DO NOT USE FOR SEALED SOURCE LEAK TESTS

COMMENTS: All samples have been surveyed for removable radioactive contamination. None was detected.

POSSIBLE CONTAMINATION AND/OR CHEMICAL HAZARDS

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
RSSI Spectrum name: G120583.An1

Sample description
G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Time of Count Uncertainty 2 Sigma
Nuclide Activity Counting Total
 pCi/g

K-40	4.49E+00	7.38E+00%	8.63E+00%
PB-214	1.14E-01	1.88E+01%	1.93E+01%
PB-212	8.23E-02	1.81E+01%	1.85E+01%
TH-234 <	3.63E-01		
AC-228	2.37E-01	1.91E+01%	1.96E+01%
Pa-234m	2.43E+00	5.06E+01%	5.08E+01%
BI-214	1.54E-01	1.99E+01%	2.04E+01%

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half-life limit exceeded

----- S U M M A R Y -----
Total Activity (9.9 to 1936.1 keV) 7.51E+00 pCi/g

This section based on library: Severson R1.Lib

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
 RSSI Spectrum name: G120583.An1

Sample description
 G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

***** S U M M A R Y O F L I B R A R Y P E A K U S A G E *****

- Nuclide -	Average	Energy	Activity	Code	MDA	Value	COMMENTS
Name	Code	Activity	Energy	Activity	Code	MDA	Value
		pCi/g	keV	pCi/g		pCi/g	

K-40	N	4.49E+00	1460.82	4.49E+00	(	6.12E-03	3.69E+00 G
			1 of	1 peaks	found		

PB-214	N	1.14E-01	351.93	1.15E-01	(	6.42E-03	9.63E+00 G
			295.22	1.12E-01	(	1.19E-02	1.62E+01 G
			2 of	2 peaks	found		

PB-212	N	8.23E-02	238.63	8.23E-02	(P	5.37E-03	8.82E+00 G
			1 of	1 peaks	found		

AC-228	N	2.37E-01	911.20	2.37E-01	(	8.31E-03	9.54E+00 G
			968.97	2.44E-01	(	2.74E-02	2.09E+01 G
			338.32	1.43E-01	-	2.40E-02	1.83E+01 G
			463.00	2.27E-01	&(	5.28E-02	3.38E+01 G
			209.28	2.23E-01	&(	4.87E-02	2.86E+01 G
			5 of	6 peaks	found		

Pa-234m	N	2.43E+00	1001.03	2.43E+00	(	3.42E-01	2.53E+01 G
			1 of	1 peaks	found		

BI-214	N	1.54E-01	609.32	1.54E-01	(	7.91E-03	9.93E+00 G
			1764.49	3.09E-01	+	5.75E-02	1.26E+01 G
			1120.29	3.47E-01	+	6.38E-02	2.28E+01 G
			3 of	4 peaks	found		

(- This peak used in the nuclide activity average.

- * - Peak is too wide, but only one peak in library.
- ! - Peak is part of a multiplet and this area went negative during deconvolution.
- ? - Peak is too narrow.
- @ - Peak is too wide at FW25M, but ok at FWHM.
- % - Peak fails sensitivity test.
- \$ - Peak identified, but first peak of this nuclide failed one or more qualification tests.
- + - Peak activity higher than counting uncertainty range.
- - Peak activity lower than counting uncertainty range.
- = - Peak outside analysis energy range.
- & - Calculated peak centroid is not close enough to the library energy centroid for positive identification.
- P - Peakbackground subtraction
- } - Peak is too close to another for the activity to be found directly.

Nuclide Codes: Peak Codes:
 T - Thermal Neutron Activation G - Gamma Ray

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
RSSI Spectrum name: G120583.An1

Sample description
G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

F - Fast Neutron Activation	X - X-Ray
I - Fission Product	P - Positron Decay
N - Naturally Occurring Isotope	S - Single-Escape
P - Photon Reaction	D - Double-Escape
C - Charged Particle Reaction	K - Key Line
M - No MDA Calculation	A - Not in Average
R - Coincidence Corrected	C - Coincidence Peak
H - Halflife limit exceeded	

This section based on library: Severson R1.Lib

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
RSSI Spectrum name: G120583.An1

Sample description
G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

***** U N I D E N T I F I E D				P E A K		S U M M A R Y *****			
Peak Centroid	Background	Net Area	Intensity	Uncert	FWHM	Suspected			
Channel	Energy	Counts	Counts	Cts/Sec	2 Sigma %	keV	Nuclide		
143.44	39.17	108.	79.	0.011	48.74	0.833	-	sM	
295.08	75.09	424.	190.	0.026	39.34	1.037	-	sM	
304.33	77.28	403.	91.	0.013	75.33	0.861	-	sM	
347.11	87.42	400.	113.	0.016	62.28	0.482	-	sM	
772.23	188.13	124.	17.	0.002	185.77	0.331	-	sC	
999.80	242.05	315.	123.	0.017	57.95	0.617	-	sM	
2439.48	583.21	60.	137.	0.019	28.77	1.425	-	s	

s - Peak fails shape tests.
D - Peak area deconvoluted.
L - Peak written from unknown list.
C - Area < Critical level.
M - Peak is close to a library peak.

This section based on library: Severson R1.Lib

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
RSSI Spectrum name: G120583.An1

Sample description
G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

Acquisition information

Start time: 27-Sep-2012 10:09:13
Live time: 7200
Real time: 7203
Dead time: 0.04 %
Detector ID: 1

Detector system

USER-802B915354 MCB 9

Calibration

Filename: G120583.An1

Energy Calibration

Created: 27-Sep-2012 13:08:28
Zero offset: 5.191 keV
Gain: 0.237 keV/channel
Quadratic: 2.708E-08 keV/channel^2

Efficiency Calibration

Created: 03-Jul-2012 15:25:49
Type: Polynomial
Uncertainty: 2.106 %
Coefficients: 0.003788 -6.031656 1.504492
-0.267131 0.018724 -0.000478

Library Files

Main analysis library: Severson R1.Lib
Library Match Width: 0.500
Peak stripping: Library based

Analysis parameters

Analysis engine: Env32 G53W4.22
Start channel: 20 (9.93keV)
Stop channel: 8144 (1936.13keV)
Peak rejection level: 100.000%
Peak search sensitivity: 3
Sample Size: 9.5880E+02
Activity scaling factor: 1.0000E+06/(1.0000E+00* 9.5880E+02) =
1.0430E+03
Detection limit method: Traditional ORTEC method
Random error: 1.0000000E+00
Systematic error: 1.0000000E+00
Fraction Limit: 10.000%
Background width: best method (based on spectrum).
Half lives decay limit: 12.000
Activity range factor: 2.000
Min. step backg. energy: 0.000
Multiplet shift channel: 2.000

Corrections

	Status	Comments
Decay correct to date:	NO	
Decay during acquisition:	NO	

ORTEC g v - i (1215) Env32 G53W4.22 27-SEP-2012 13:08:37
RSSI Spectrum name: G120583.An1

Sample description
G120583 Severson 120926FM-20 Lafarge Elburn, 958.8g

Spectrum Filename: H:\GammaVision\User\Spectra\G120583.An1

Decay during collection:	NO	
True coincidence correction:	NO	
Peaked background correction:	YES	dector 3 background 8_28_12.Pbc 29-Aug-2012 09:44:54
Absorption (Internal):	NO	
Geometry correction:	NO	
Random summing:	NO	

total peaks alloc.	14	cutoff	20.00000	%
Energy Calibration				
Normalized diff:	0.1183			

Laboratory: RSSI

Sample Results

Moisture Correction for 102926FM-20 Lafarge Elburn Sample

Batch ID

	As Reported Ac- 228 pCi/g	Moisture Corrected Th-232 pCi/g	As Reported Bi- 214 pCi/g	Moisture Corrected Ra-226 pCi/g	Moisture Corrected Th+Ra pCi/g	Percent Moisture	Percent Solid
120926FM-20 Lafarge Elburn	2.37E-01	2.47E-01	1.54E-01	1.61E-01	4.08E-01	4.2%	95.8%

= fields that need filling in from report data.

Data Entered By: Douglas Coble

Date: 9/28/2012

Signature: 

[illegible]

Date: 9/26/2012

Page: 1 of 1

[illegible]



COMPACTION CHARACTERISTICS OF SOIL

ASTM D698, Method A STANDARD EFFORT

Client: Severson **Analyst:** K. Mohammed
Project: Rte 59 Bridge Over Kress Creek **Date Sampled:** 9/19/2012
WEI Job: 920-02-01 **Date Tested:** 9/20/2012
Client Reference #: Not Available **Description:** Brown Sand
Sample Location: LaFarge Elburn **Agg Source:** LaFarge Elburn
Type/Condition: Bulk / Dry **Agg Source #:** 50890-27
As received water content: 4.30% **Material Code:** 029FM20
Rammer type: Manual **Total Mass (g):** 21779
Rammer face: Round **#4 Sieve Mass (g):** 240 **Removed**

Mass of soil and mold (g)	Mass of can and wet soil (g) Mw	Mass of can and dry soil (g) Md	Mass of can (g) Mc	Water content (%)
6,088	171.3	160.6	31.2	8.2
	164.1	154.0	31.2	8.3
	187.4	175.5	30.8	8.2
6,135	196.7	181.1	31.1	10.4
	206.2	189.6	30.2	10.4
	169.5	156.7	31.2	10.2
6,223	186.5	168.4	30.3	13.1
	167.1	151.2	31.4	13.3
	225.1	202.6	31.3	13.1
6,260	147.9	131.9	31.8	16.0
	152.9	137.0	31.3	15.1
	207.0	182.5	31.1	16.2
6,228	218.2	189.6	31.5	18.1
	209.9	182.3	31.3	18.3
	165.4	144.5	31.5	18.5

Mass of soil and mold (g) M	Average water content (%) w	Dry unit weight (pcf) γ_d
6,088	8	116
6,135	10	116
6,223	13	119
6,260	16	118
6,228	18	114

Mold ID = 2
 Volume of Mold = 941 cm³
 Mass of mold $M_m = 4202.00$ g
 Estimated specific gravity $G_s = 2.68$

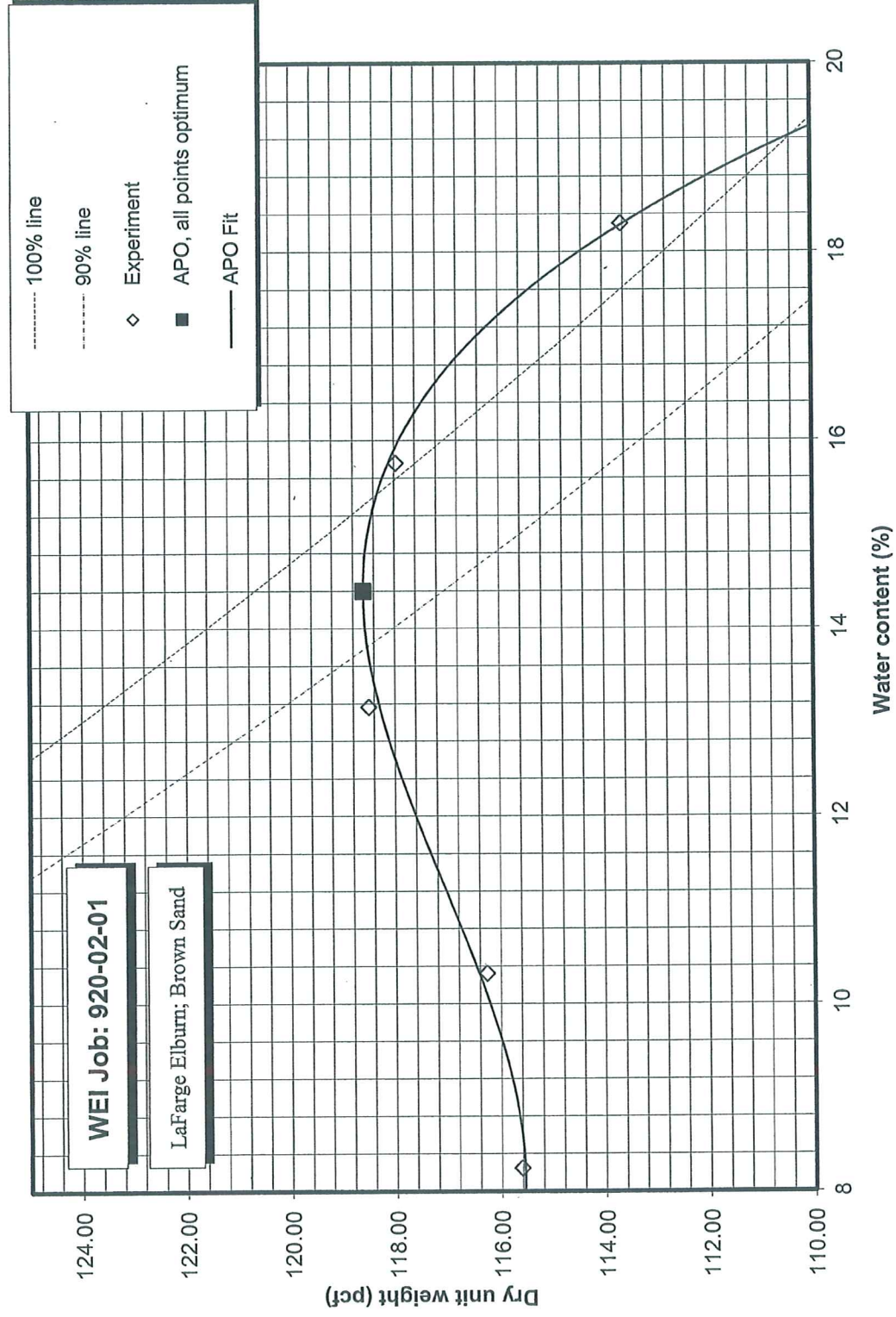
AASHTO

Optimum moisture (%) = 14
 Maximum dry unit weight (pcf) = 119

Prepared by: G. Nami Date: 9-20-12
 Checked by: K. P. Date: 9/20/12

WANG ENGINEERING, INC.

**MOISTURE--DENSITY RELATIONSHIP
ASTM D698, Method A (Standard Effort)**



COMPACTION CHARACTERISTICS OF SOIL

ASTM D1557, Method A

MODIFIED EFFORT

Client: *Sevenson* **Analyst:** *K. Mohammed*
Project: *Rte 59 Bridge Over Kress Creek* **Date Sampled:** *9/19/2012*
WEI Job: *920-02-01* **Date Tested:** *9/20/2012*
Client Reference #: *Not Available* **Description:** *Brown Sand*
Sample Location: *LaFarge Elburn* **Agg Source:** *LaFarge Elburn*
Type/Condition: *Bulk / Dry* **Agg Source #:** *50890-27*
As received water content: *4.30%* **Material Code:** *029FM20*
Rammer type: *Mechanical* **Total Mass (g):** *21779*
Rammer face: *Round* **#4 Sieve Mass (g):** *240* **Removed**

Mass of soil and mold (g)	Mass of can and wet soil (g) Mw	Mass of can and dry soil (g) Md	Mass of can (g) Mc	Water content (%)
6,250	171.3	160.6	31.2	8.2
	164.1	154.0	31.2	8.3
	187.4	175.5	30.8	8.2
6,327	196.7	181.1	31.1	10.4
	206.2	189.6	30.2	10.4
	169.5	156.7	31.2	10.2
6,368	186.5	168.4	30.3	13.1
	167.1	151.2	31.4	13.3
	225.1	202.6	31.3	13.1
6,400	147.9	131.9	31.8	16.0
	152.9	137.0	31.3	15.1
	207.0	182.5	31.1	16.2
6,415	218.2	189.6	31.5	18.1
	209.9	182.3	31.3	18.3
	165.4	144.5	31.5	18.5

Mass of soil and mold (g) M	Average water content (%) w	Dry, unit weight (pcf) γ_d
6,250	8	126
6,327	10	128
6,368	13	127
6,400	16	126
6,415	18	124

Mold ID = *1*
Volume of Mold = *933* cm³
Mass of mold M_m = *4218.00* g
Estimated specific gravity G_s = *2.68*

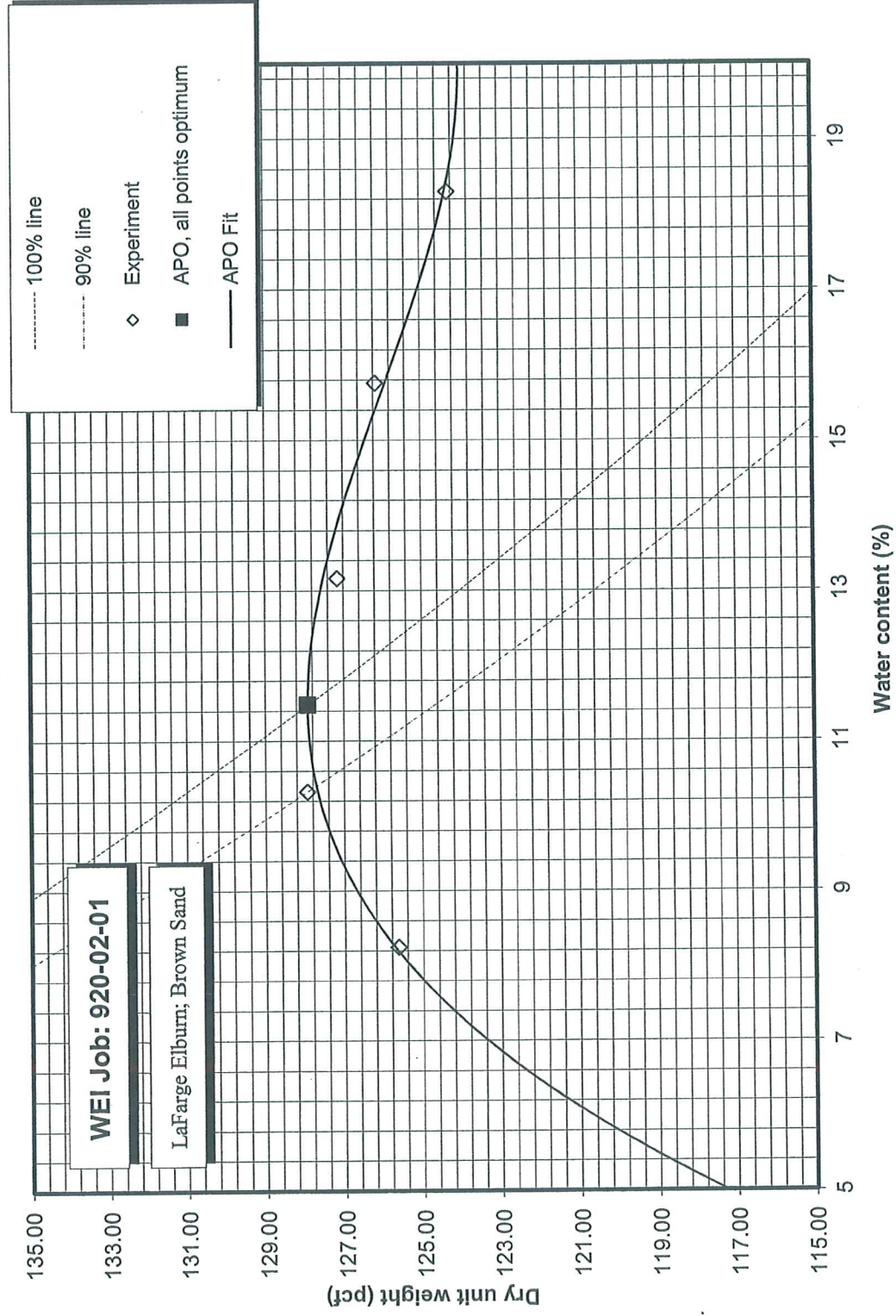
AASHTO

Optimum moisture (%) = *11*
Maximum dry unit weight (pcf) = *128*

Prepared by: *G. Nam* Date: *9-20-12*
Checked by: *AR* Date: *9/20/12*

WANG ENGINEERING, INC.

**MOISTURE--DENSITY RELATIONSHIP
ASTM D1557, Method A (Modified Effort)**



SEQUENCE NO:

--

AGG SOURCE NAME: LaFarge Elburn

TEST ID NUMBER

1

3.1%

1

SAMPLE FROM CODES			
SP = Stockpile	PR = Production	TK = Truck	
OB = On Belt (stopped)	BE = Belt Stream	CR = Rail Car	
RD = Road	WB = Weighin Belt	BR = Barge	
SI = Silo/Bin	CF = Cold Feed		
TD = Truck Dump	HB = Hot Bin		

[illegible]

Tested By: Khalid Mohammed on 09/20/2012
Signature:  Agency: Wang Engineering, Inc.
Reported By / QC Manager: Greg Syfert
Signature:  Agency: Wang Engineering, Inc.

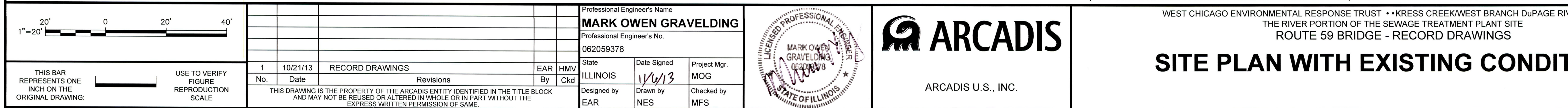


Appendix H

Record Drawings

	XREFS:	IMAGES:	PROJECTNAME:
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71004X01
71004X06
71027X01.tif



LEGEND:

- LAND USE KEY
- FOREST PRESERVE
- RESIDENTIAL

NOTES:

1. BASE MAP PROVIDED BY KERR-McGEE CHEMICAL LLC (NOW KNOWN AS TRONOX) IN AN ARC VIEW PROJECT ENTITLED WEST CHICAGO KRESS CREEK. TOPOGRAPHIC LINES WITHIN THE LIMIT OF SURVEY LINE WERE DEVELOPED BY ARCADIS FROM SURVEY DATA COLLECTED BY PROSOURCE TECHNOLOGIES INC (NOW KNOWN AS CARLSON MCCAIN, INC.).
2. DIFFERENCES BETWEEN REACHES 3B AND 4 LIMIT OF DISTURBANCE AND ROUTE 59 BRIDGE LIMIT OF DISTURBANCE ARE DUE TO THE PRESENCE OF WING WALLS.

RECORD DRAWINGS

TO THE BEST OF OUR KNOWLEDGE,
INFORMATION AND BELIEF, THESE RECORD
DRAWINGS SUBSTANTIALLY REPRESENT THE
PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. A-1, TRACER NO. B0071042/0000/60001/DWG/71042A1.DWG DATED 9/10/12) DATE 11/6/13 BY MOG

WEST CHICAGO ENVIRONMENTAL RESPONSE TRUST ••KRESS CREEK/WEST BRANCH DuPAGE RIVER SITE AND
THE RIVER PORTION OF THE SEWAGE TREATMENT PLANT SITE
ROUTE 59 BRIDGE - RECORD DRAWINGS

SITE PLAN WITH EXISTING CONDITIONS

ARCADIS Project No.
B0071044.0000.20004

Date
OCTOBER 2013

ARCADIS
6723 Towpath Road
Syracuse, NY 13214
315-446-9120

A-1

CITY: SYRACUSE DIV/GROUP:141 DBNES LD:NES PIC: PM: TM: LYRON="OFF=REF"
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XREFS: 7/1042X00
IMAGES: 7/1027X01.ifc
PROJECTNAME: ----

TABLE 1

Open Floodplain Seed Mix		
Lbs./Acre	Scientific Name	Common Name
1.5	<i>Andropogon gerardii</i>	Big Bluestem
0.063	<i>Asclepias incarnata</i>	Swamp Milkweed
0.125	<i>Aster laevis</i>	Smooth Blue Aster
0.031	<i>Aster novae-angliae</i>	New England Aster
0.031	<i>Aster prealtius</i>	Willow Aster
0.25	<i>Baptisia leucantha</i>	Wild White indigo
0.063	<i>Bidens</i> sp.	Tickseed
0.25	<i>Calamagrostis canadensis</i>	Blue Joint Grass
0.125	<i>Carex annectans xanthocarpa</i>	Small Yellow Fox Sedge
0.125	<i>Carex bebbii</i>	Bebb's Sedge
0.063	<i>Carex buxbaumii</i>	Sedge
0.125	<i>Carex normalis</i>	Normal Sedge
0.125	<i>Carex vulpinoidea</i>	Fox Sedge
0.031	<i>Chelone glabra</i>	Turtle head
0.15	<i>Desmodium canadense</i>	Showy Tick Trefoil
0.062	<i>Eleocharis acicularis</i>	Needle Spike Rush
0.062	<i>Eleocharis erythropoda</i>	Red-Rooted Spike Rush
1.5	<i>Elymus virginicus</i>	Virginia Wild Rye
0.259	<i>Eupatorium maculatum</i>	Spotted Joe Pye Weed
0.115	<i>Eupatorium perfoliatum</i>	Boneset
0.5	<i>Helenium autumnale</i>	Sneezeweed
0.5	<i>Glyceria striata</i>	Fowl Manna Grass
0.125	<i>Iris virginica shrevei</i>	Blue Flag
0.031	<i>Juncus dudleyi</i>	Dudley's Rush
0.062	<i>Juncus torreyi</i>	Torrey Rush
1	<i>Leersia oryzoides</i>	Rice Cut Grass
0.188	<i>Liatris spicata</i>	Spiked Gayfeather
0.313	<i>Liatris pycnostachya</i>	Prairie Gayfeather
0.031	<i>Lobelia siphilitica</i>	Great Blue Lobelia
0.063	<i>Lycopus americanus</i>	Water Horehound
0.015	<i>Lythrum alatum</i>	Winged Loosestrife
0.031	<i>Mimulus ringens</i>	Monkey Flower
0.016	<i>Monarda fistulosa</i>	Bergamot
0.25	<i>Panicum virgatum</i>	Switch Grass
0.001	<i>Penthorum sedoides</i>	Ditch Stonecrop
0.125	<i>Polygonum pennsylvanicum</i>	Pennsylvania Knotweed
0.16	<i>Pycnanthemum virginianum</i>	Common Mountain Mint
0.25	<i>Rudbeckia hirta</i>	Black-Eyed Susan
0.063	<i>Rudbeckia laciniata</i>	Wild Golden Glow
0.5	<i>Scirpus atrovirens</i>	Dark Green Rush
0.125	<i>Silphium perfoliatum</i>	Cup Plant
0.063	<i>Solidago riddellii</i>	Riddell's Goldenrod
0.125	<i>Solidago rigida</i>	Stiff Goldenrod
0.25	<i>Spartina pectinata</i>	Cord Grass
0.046	<i>Verbena hastata</i>	Blue Vervain
0.018	<i>Vernonia fasciculata</i>	Common Ironweed
0.063	<i>Veronicastrum virginicum</i>	Culver's Root
0.031	<i>Zizia aurea</i>	Golden Alexander
10	Total	
Cover Crop:	Annual Rye @ 12 lbs/acre	

TABLE 2

Upland Seed Mix		
Species	Common Name	Lbs./Acre
<i>Andropogon gerardii</i>	Big Bluestem	2.71
<i>Andropogon scoparius</i>	Little Bluestem	2.7
<i>Allium cernuum</i>	Nodding Wild Onion	0.15
<i>Amorpha canescens</i>	Leadplant	0.05
<i>Asclepias verticillata</i>	Whorled Milkweed	0.05
<i>Aster laevis</i>	Smooth Blue Aster	0.25
<i>Aster nova-angliae</i>	New England Aster	0.15
<i>Coreopsis palmata</i>	Prairie Coreopsis	0.05
<i>Echinacea purpurea</i>	Purple Coneflower	0.1
<i>Eryngium yuccifolium</i>	Rattlesnake Master	0.25
<i>Liatris aspera</i>	Button Blazing Star	0.25
<i>Penstemon digitalis</i>	Foxglove Beardtongue	0.15
<i>Petalostemum purpureum</i>	Purple Prairie Clover	0.5
<i>Ratibida pinnata</i>	Yellow Cone Flower	0.5
<i>Rudbeckia hirta</i>	Black Eyed Susan	0.5
<i>Solidago juncea</i>	Early Goldenrod	0.1
<i>Solidago nemoralis</i>	Gray Goldenrod	0.3
<i>Sorghastrum nutans</i>	Indian Grass	2.6
<i>Tradescantia ohiensis</i>	Ohio Spiderwort	0.15
<i>Verbena stricta</i>	Hoary Vervain	0.25
<i>Zizia aptera</i>	Meadow Parsnip	0.25
Total		12.01
Cover Crop:	Annual Rye	6

NOTE:

SEED APPLIED AT RATE OF 12 LBS PER ACRE PLUS COVER CROP.

TABLE 3

Wetland Seed Mix		
Lbs./Acre	Scientific Name	Common Name
0.063	<i>Actinomeris (Verbisina) alternifolia</i>	Wingstem
0.375	<i>Alisma subcordatum</i>	Common Water Plantain
0.063	<i>Alisma triviale</i>	Northern Water Plantain
0.031	<i>Anemone canadensis</i>	Meadow Anemone
0.25	<i>Asclepias incarnata</i>	Swamp Milkweed
0.375	<i>Aster nova-angliae</i>	New England Aster
0.031	<i>Aster simplex (lanceolatus)</i>	Panicked Aster
0.75	<i>Bidens cernua</i>	Nodding Bur Marigold
0.063	<i>Boehmeria cylindrica</i>	False Nettle
0.5	<i>Calamagrostis canadensis</i>	Blue Joint Grass
0.188	<i>Carex cristatella</i>	Crested Sedge
0.063	<i>Carex pellita (C. lanuginosa)</i>	Broad Leaved Wooly Sedge
0.25	<i>Carex scoparia</i>	Pointed Broom Sedge
0.5	<i>Carex stipata</i>	Awl-fruited Sedge
0.063	<i>Carex stricta</i>	Strict Sedge
0.25	<i>Carex tribuloides</i>	Awl-fruited Sedge
1	<i>Carex vulpinoidea</i>	Fox Sedge
1	<i>Cyperus esculentus</i>	Field Nut Sedge
1	<i>Echinochloa crusgalli</i>	Barnyard Grass
0.063	<i>Eleocharis erythropoda</i>	Red-rooted Spike Rush
0.015	<i>Erigeron philadelphicus</i>	Marsh Fleabane
0.125	<i>Eupatorium maculatum</i>	Spotted Joe Pye Weed
0.125	<i>Eupatorium perfoliatum</i>	Thoroughwort
0.015	<i>Galium tinctorium</i>	Stiff Bedstraw
0.188	<i>Gentiana andrewsii</i>	Bottle Gentian
0.125	<i>Glyceria striata</i>	Fowl Manna Grass
0.125	<i>Helenium autumnale</i>	Sneezeweed
0.188	<i>Iris virginica shrevei</i>	Blue Flag
0.25	<i>Juncus torreyi</i>	Torrey's Rush
0.5	<i>Leersia oryzoides</i>	Rice Cut Grass
0.031	<i>Lobelia siphilitica</i>	Blue Lobelia
0.188	<i>Lycopus americanus</i>	Common Water Horehound
0.015	<i>Lycopus virginicus</i>	Bugle Weed
0.015	<i>Lysimachia thyrsoiflora</i>	Tufted Loosestrife
0.015	<i>Lythrum alatum</i>	Winged Loosestrife
0.015	<i>Mentha arvensis villosa</i>	Wild Goldenglow
0.015	<i>Mimulus ringens</i>	Monkey Flower
0.015	<i>Penthorum sedoides</i>	Ditch Stonecrop
0.125	<i>Pontedaria cordata</i>	Pickeral Weed
0.125	<i>Pycnanthemum virginianum</i>	Common Mt Mint
0.015	<i>Rudbeckia laciniata</i>	Wild Goldenglow
0.25	<i>Sagittaria latifolia</i>	Duck Potato
0.25	<i>Scirpus acutus (Schoenoplectus a.)</i>	Hard Stem Bulrush
1	<i>Scirpus atrovirens</i>	Dark Green Rush
0.125	<i>Scirpus fluviatilis</i>	River Bulrush
0.25	<i>Scirpus validus (Schoenoplectus tabernaemontani)</i>	Great Bulrush
0.015	<i>Scutellaria lateriflora</i>	Mad Dog Skullcap
0.063	<i>Solidaga gigantea</i>	Late Goldenrod
0.125	<i>Sparganium eurycarpum</i>	Common Bur-reed
0.063	<i>Teucrium canadense</i>	Germander
1	<i>Verbena hastata</i>	Blue Vervain
0.188	<i>Vernonia fasciculata</i>	Common Ironweed
Cover crop: Avena sativa (Seed Oats) @ 32 lbs. per acre		

NOTES:

1. Seed applied at rate of 12 lbs. per acre plus cover crop.
2. Zizania palustris (Wild Rice) to be additionally broadcast into areas with saturated soils at a rate of 50 lbs. per acre at locations suggested by the Local Communities.

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE,
INFORMATION AND BELIEF, THESE RECORD
DRAWINGS SUBSTANTIALLY REPRESENT THE
PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. B-3, TRACER NO. B0071042/0000/60001/DWG/71042B3.DWG DATED 8/10/12) DATE 11/6/13 BY MOG

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

1	10/21/13	RECORD DRAWINGS	EAR	HMV
No.	Date	Revisions	By	Ckd
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REUSED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.				

Professional Engineer's Name
MARK OWEN GRAVELDING
Professional Engineer's No.
062059378

State
ILLINOIS

Date Signed
11/6/13

Project Mgr.
MOG

Designed by
EAR

Drawn by
NES

Checked by
MFS

LICENSED PROFESSIONAL ENGINEER
MARK OWEN GRAVELDING
062059378
STATE OF ILLINOIS

ARCADIS

ARCADIS U.S., INC.

WEST CHICAGO ENVIRONMENTAL RESPONSE TRUST • KRESS CREEK/WEST BRANCH DUPAGE RIVER SITE AND THE RIVER PORTION OF THE SEWAGE TREATMENT PLANT SITE
ROUTE 59 BRIDGE - RECORD DRAWINGS

VEGETATION SPECIFICATION SUMMARY TABLES

ARCADIS Project No.
B0071044.0000.20004

Date
OCTOBER 2013

ARCADIS
6723 Towpath Road
Syracuse, NY 13214
315-446-9120

B-3

CITY, SYRACUSE, DIV/GRP: 141 DB: NES AGS NES, LD: NES, P/C: PM, TM: LYP ON*OFF=REF*
G:\ENVCAD\SYRACUSE\ACT180071044\000\200\DWG\RECORD\71042S5A.DWG LAYOUT: S-5A, SAVED: 10/24/2013 10:32 AM, ACADVER: 18, IS (LWS TECH), PAGES: 18, PLOT: 10/24/2013 10:48 AM, BY: SAWYER, NANCY



LEGEND:

	GUARDRAIL WAS REMOVED AND REPLACED		LIMIT OF TARGETED MATERIAL
	SHOULDER PAVEMENT WAS REMOVED AND REPLACED		EXCAVATION AREA
	PAVEMENT WAS MILLED AND RESURFACED W/ HOT MIX ASPHALT		AREA EXCAVATED DURING PREVIOUS REACHES 3B AND 4 ACTIVITIES
	ENTIRE PAVEMENT DEPTH WAS REMOVED AND REPLACED		LIMIT OF REACHES 3B AND 4 RECORD SURVEYS
	ENTIRE APPROACH SLAB DEPTH WAS REMOVED AND REPLACED		ELEVATION CONTOUR
	REPLACEMENT CURB		DEPRESSION ELEVATION CONTOUR
	EOP - EDGE OF PAVEMENT		EDGE OF WATER
	EOS - EDGE OF SHOULDER		APPROACH SLAB

- NOTES:**
- ALL FULL DEPTH PATCHES, WHERE PAVEMENT HAD BEEN REMOVED WERE PROTECTED BY A MINIMUM OF TWO (2) FLASHING BARRICADES.
 - PRIOR TO PLACEMENT OF THE BITUMINOUS AGGREGATE MIXTURE ALL EXPOSED ASPHALT SURFACES WERE PRIMED WITH BITUMINOUS MATERIALS (PRIME COAT).
 - PAVEMENT WAS RESTORED WITH THE SAME TYPES/THICKNESSES OF ASPHALT AND SUBBASE MATERIALS THAT CURRENTLY EXISTED. IF PCC BASE COURSE WAS ENCOUNTERED, REQUIREMENTS FOR IDOT STANDARD 442101, CLASS B, METHOD II PATCHES WERE FOLLOWED. IF HMA BASE WAS ENCOUNTERED, REQUIREMENTS OF IDOT STANDARD 442101 CLASS C AND CLASS D PAVEMENT PATCHES WERE FOLLOWED. TRANSVERSE JOINTS FOR CLASS B PATCHES WERE ALIGNED WITH JOINTS OR CRACKS IN THE ADJACENT LANE WHENEVER POSSIBLE. REFER TO ATTACHMENT A OF APPENDIX A-1 OF THE FD/RA WORK PLAN FOR IDOT STANDARD PATCH DETAILS.
 - REPLACEMENT SHOULDER SECTION WAS MATCHED TO THE EXISTING SHOULDERS AND CONSISTED OF HMA MEETING THE REQUIREMENTS FOR 6.25 INCHES OF HMA SHOULDER (HMA BINDER 12-19 MM) AND 1.75 INCHES OF POLYMERIZED HMA SURFACE COURSE, MIX D, N70.
 - APPROACH SLAB REMOVAL AND REPAIR FOLLOWED IDOT "APPROACH SLAB REPAIR" GUIDELINES.
 - EXISTING GUARDRAIL WERE REMOVED AND REPLACED TO ORIGINAL ALIGNMENT PER IDOT STANDARD 630001-08 PER ATTACHMENT A OF APPENDIX A-1 OF THE WORK PLAN. REFER ATTACHMENT A OF APPENDIX A-1 OF THE FD/RA WORK PLAN FOR EXISTING GUARDRAIL IMPROVEMENT PROJECT DRAWINGS.

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE,
INFORMATION AND BELIEF, THESE RECORD
DRAWINGS SUBSTANTIALLY REPRESENT THE
PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. S-5A, TRACER NO. B0071042/0000/60001/DWG/71042S5A.DWG DATED 9/10/12) DATE 11/1/2013 BY MAP

 THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING. USE TO VERIFY FIGURE REPRODUCTION SCALE	<table><tr><td>1</td><td>10/21/13</td><td>RECORD DRAWINGS</td><td>EAR</td><td>HMV</td></tr><tr><td>No.</td><td>Date</td><td>Revisions</td><td>By</td><td>Ckd</td></tr></table>	1	10/21/13	RECORD DRAWINGS	EAR	HMV	No.	Date	Revisions	By	Ckd	<table><tr><td colspan="2">Professional Engineer's Name MATTHEW ALAN PALTE</td></tr><tr><td colspan="2">Professional Engineer's No. 081.006818</td></tr><tr><td>State ILLINOIS</td><td>Date Signed 11/1/2013</td><td>Project Mgr. MOG</td></tr><tr><td>Designed by KLC</td><td>Drawn by NES</td><td>Checked by MAP</td></tr></table>	Professional Engineer's Name MATTHEW ALAN PALTE		Professional Engineer's No. 081.006818		State ILLINOIS	Date Signed 11/1/2013	Project Mgr. MOG	Designed by KLC	Drawn by NES	Checked by MAP	 ARCADIS U.S., INC.	<p>WEST CHICAGO ENVIRONMENTAL RESPONSE TRUST • KRESS CREEK/WEST BRANCH DuPAGE RIVER SITE AND THE RIVER PORTION OF THE SEWAGE TREATMENT PLANT SITE ROUTE 59 BRIDGE - RECORD DRAWINGS</p> <p>PAVEMENT AND GUARDRAIL RESTORATION PLAN</p>	<table><tr><td>ARCADIS Project No. B0071044.0000.20004</td><td rowspan="2">S-5A</td></tr><tr><td>Date OCTOBER 2013</td></tr></table>	ARCADIS Project No. B0071044.0000.20004	S-5A	Date OCTOBER 2013
		1	10/21/13	RECORD DRAWINGS	EAR	HMV																						
No.	Date	Revisions	By	Ckd																								
Professional Engineer's Name MATTHEW ALAN PALTE																												
Professional Engineer's No. 081.006818																												
State ILLINOIS	Date Signed 11/1/2013	Project Mgr. MOG																										
Designed by KLC	Drawn by NES	Checked by MAP																										
ARCADIS Project No. B0071044.0000.20004	S-5A																											
Date OCTOBER 2013																												
					<table><tr><td>ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120</td></tr></table>	ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120																						
ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120																												

CITY, SYRACUSE, DIV:GROUP: 141, DB: NES AGS NES, LD: NES, P/C: PM, TM: LYP ON: OFF=REF, GLEN/CADSYRACUSE/ACT/B0071044/0000/2000/DWG/RECORD/71042S5C.DWG, LAYOUT: S-5C, SAVED: 10/21/2013 4:51 PM, ACADVER: 18.1S (LMS TECH), PAGES: 18, PLOT: 10/24/2013 10:45 AM, BY: SAWYER, NANCY



- LEGEND:
- EOP — EDGE OF PAVEMENT
 - EOS — EDGE OF SHOULDER
 - LIMIT OF PAVEMENT REPAIR
 - STRIPING
 - ELEVATION CONTOUR
 - DEPRESSION ELEVATION CONTOUR
 - LIMIT OF TARGETED MATERIAL
 - [Hatched Box] EXCAVATION AREA
 - [Diagonal Hatched Box] AREA EXCAVATED DURING PREVIOUS REACHES 3B AND 4 ACTIVITIES
 - [Solid Brown Box] APPROACH SLAB

- NOTES:
- PAVEMENT MARKINGS DISTURBED DURING CONSTRUCTION WERE REPLACED IN ACCORDANCE WITH IDOT DISTRICT 1 DETAILS TC-11 AND TC-13 UTILIZING THERMOPLASTIC PAVEMENT MARKING.
 - CENTERLINE WAS NOT DISTURBED DURING CONSTRUCTION ACTIVITIES.

RECORD DRAWINGS
TO THE BEST OF OUR KNOWLEDGE,
INFORMATION AND BELIEF, THESE RECORD
DRAWINGS SUBSTANTIALLY REPRESENT THE
PROJECT AS CONSTRUCTED.



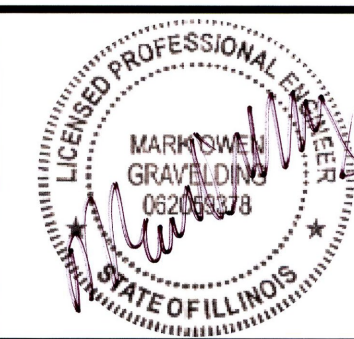
THIS BAR
REPRESENTS ONE
INCH ON THE
ORIGINAL DRAWING:

USE TO VERIFY
FIGURE
REPRODUCTION
SCALE

1	10/21/13	RECORD DRAWINGS	EAR	HMV
No.	Date	Revisions	By	Ckd
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REUSED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.				

Professional Engineer's Name
MARK OWEN GRAVELDING
Professional Engineer's No.
062059378

State	Date Signed	Project Mgr.
ILLINOIS	11/6/13	MOG
Designed by	Drawn by	Checked by
EAR	NES	KLC



ARCADIS
ARCADIS U.S., INC.

(RECORD DRAWING: MADE FROM DRAWING NO. S-5C, TRACER NO. B0071042/0000/60001/DWG/71042S5C.DWG DATED 9/10/12) DATE 11/6/13 BY MOG

WEST CHICAGO ENVIRONMENTAL RESPONSE TRUST ••KRESS CREEK/WEST BRANCH DuPAGE RIVER SITE AND
THE RIVER PORTION OF THE SEWAGE TREATMENT PLANT SITE
ROUTE 69 BRIDGE - RECORD DRAWINGS

PAVEMENT STRIPING PLAN

ARCADIS Project No.
B0071044.0000.20004

Date
OCTOBER 2013

ARCADIS
6723 Towpath Road
Syracuse, NY 13214
315-446-9120


S-5C



Appendix I


Representative Project Photographs


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 1	
DATE: 9/25/12	
DIRECTION: Southwest	
COMMENT: Clearing and grubbing in southwest corner (R4-5) of Route 59 Bridge area.	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 2	
DATE: 9/18/12	
DIRECTION: Northwest	
COMMENT: Removal of guardrails in northeast corner (R3B-25) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 3	
DATE: 9/19/12	
DIRECTION: Northwest	
COMMENT: Asphalt removal in northwest corner (R3B-25) of Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 4	
DATE: 9/20/12	
DIRECTION: Northwest	
COMMENT: Installation of soldier piles in northwest corner (R3B-23) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 5	
DATE: 9/24/12	
DIRECTION: West	
COMMENT: Excavation of overburden material from northeast corner (R3B-25) of Route 59 Bridge Area.	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 6	
DATE: 9/24/12	
DIRECTION: East	
COMMENT: Installation of wood lagging in northeast corner (R3B-25) of Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 7	
DATE: 9/27/12	
DIRECTION: East	
COMMENT: Overburden material excavation and wood lagging installation in northwest corner (R3B-23) of Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 8	
DATE: 9/24/12	
DIRECTION: East	
COMMENT: Loading of overburden material into haul trucks for transport to the staging area at the Rare Earths Facility.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 9	
DATE: 9/24/12	
DIRECTION: North	
COMMENT: Survey of verification point at the top of overburden material in the northeast corner (R3B-25) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 10	
DATE: 9/27/12	
DIRECTION: Northeast	
COMMENT: Gamma survey of truck hauling overburden material from the Route 59 Bridge Area to the Rare Earths Facility staging area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 11	
DATE: 9/24/12	
DIRECTION: East	
COMMENT: Unloading overburden material from the Route 59 Bridge Area at the Rare Earths Facility staging area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 12	
DATE: 9/24/12	
DIRECTION: East	
COMMENT: Gamma survey of overburden material at the Rare Earths Facility staging area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 13	
DATE: 9/29/12	
DIRECTION: Northwest	
COMMENT: Excavation of targeted material from the northwest corner (R3B-23) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 14	
DATE: 9/28/12	
DIRECTION: East	
COMMENT: Excavation of targeted material and survey of verification point at bottom of targeted material in northwest corner (R3B-23) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 15	
DATE: 10/8/12	
DIRECTION: West	
COMMENT: Gamma survey of haul truck transporting targeted material to the Rail Loading Facility at the Rare Earths Facility.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 16	
DATE: 9/29/12	
DIRECTION: West	
COMMENT: Unloading targeted material from the Route 59 Bridge Area at the Rail Loading Facility in the Rare Earths Facility.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 17	
DATE: 10/6/12	
DIRECTION: Northwest	
COMMENT: Loading targeted material from the Route 59 Bridge Area into railcars.	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 18	
DATE: 10/2/12	
DIRECTION: Northwest	
COMMENT: Backfill and compaction in the northwest corner (R3B-23) of the Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 19	
DATE: 10/5/12	
DIRECTION: Southwest	
COMMENT: Backfill behind wingwall in the southwest corner (R4-5) of Route 59 Bridge Area	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 20	
DATE: 10/3/12	
DIRECTION: East	
COMMENT: Density testing backfill in the northwest corner (R3B-23) of the Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 21	
DATE: 9/26/12	
DIRECTION: Northeast	
COMMENT: Backfill and compaction in the northeast corner (R3B-25) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 22	
DATE: 10/11/12	
DIRECTION: West	
COMMENT: Backfill of asphalt subbase in northwest corner (R3B-23) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 23	
DATE: 10/10/12	
DIRECTION: West	
COMMENT: Sawcutting of existing asphalt and concrete in northeast corner (R3B-25) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 24	
DATE: 10/10/12	
DIRECTION: East	
COMMENT: Removal of existing concrete to expose steel reinforcement in northeast corner (R3B-25) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 25	
DATE: 10/12/12	
DIRECTION: East	
COMMENT: Installation of steel reinforcement and tie in to existing bridge approach slab in northeast corner (R3B-25) of Route 59 Bridge Area.	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 26	
DATE: 10/15/12	
DIRECTION: East	
COMMENT: Placement of concrete for repair of bridge approach slab in northeast corner (R3B-25) of Route 59 Bridge.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 27	
DATE: 10/15/12	
DIRECTION: East	
COMMENT: Placement of concrete for repair of bridge approach slab in northeast corner (R3B-25) of Route 59 Bridge.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 28	
DATE: 10/15/12	
DIRECTION: West	
COMMENT: Testing of concrete placed for repair of bridge approach slab at Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 29	
DATE: 10/15/12	
DIRECTION: East	
COMMENT: Curb and gutter replacement in southeast corner (R4-2) of Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 30	
DATE: 10/18/12	
DIRECTION: East	
COMMENT: Asphalt milling for tie in of new asphalt surface to existing pavement at the Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 31	
DATE: 10/24/12	
DIRECTION: West	
COMMENT: Asphalt placement in northeast corner (R3B-25) of Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 32	
DATE: 10/24/12	
DIRECTION: West	
COMMENT: Asphalt compaction in northeast corner (R3B-25) of Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 33	
DATE: 10/24/12	
DIRECTION: East	
COMMENT: Density testing of installed asphalt in northwest corner (R3B-23) of Route 59 Bridge Area.	


CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 34	
DATE: 10/25/12	
DIRECTION: East	
COMMENT: Thermoplastic striping installation through work area at the Route 59 Bridge Area.	


**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 35	
DATE: 10/22/12	
DIRECTION: East	
COMMENT: Placement of topsoil in the northeast corner (R3B-25) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 36	
DATE: 10/26/12	
DIRECTION: Northwest	
COMMENT: Seeding and erosion control mat installation in the northwest corner (R3B-23) of the Route 59 Bridge Area.	

**Kress Creek/West Branch DuPage River Remedial Action Project
Route 59 Bridge Area (Reaches 3B and 4)
DuPage County, IL**

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 37	
DATE: 10/23/12	
DIRECTION: Southwest	
COMMENT: Replacement of guardrails in southwest corner (R4-5) of the Route 59 Bridge Area.	

CLIENT: WCERT	SITE NAME: Kress Creek/West Branch DuPage River
PROJECT #: B0071043.0000	SITE LOCATION: DuPage County, IL
PHOTOGRAPH #: 38	
DATE: 10/22/12	
DIRECTION: North	
COMMENT: Load-out of overburden material from the Rare Earths Facility to Waste Management Landfill.	



Appendix J

Pre-Construction and Post-
Construction Condition Assessments
of Route 59 Bridge

Pre-Construction and Post-Construction Condition Assessments of Route 59 Bridge

The Route 59 Bridge Area is located within Reaches 3B and 4, and more specifically includes portions of Excavation Area Nos. R3B-23, R3B-25, R4-2 and R4-5 directly adjacent to the bridge. Due to the proximity of excavation to the bridge, construction methods, which included a soldier pile and lagging system, were selected to ensure safe construction, to not adversely affect the existing bridge, and to minimize the reconstruction of the roadway. As required by the Illinois Department of Transportation permit, ARCADIS performed pre-construction and post-construction condition assessments on the Route 59 Bridge. This memorandum presents the findings of the pre-construction and post-construction condition assessments. The overall conclusion is that the construction did not adversely affect or damage the bridge.

Bridge Background

Based on design drawings provided by DuPage County, it was determined that the Route 59 Bridge was constructed in 1973 and is a single span bridge over DuPage River. The bridge is composed of 10 precast prestressed concrete I-beams and a cast-in-place concrete deck and parapet. Cast-in-place concrete wing walls are located on each corner of each corner of the bridge. Drainage of the bridge deck occurs through scuppers along each parapet.

Pre-Construction Condition Assessment

General

On the morning of September 13, 2012 a pre-construction condition assessment of the Route 59 Bridge over the DuPage River was conducted by Matt Palte of ARCADIS, a structural engineer licensed in the state of Illinois. Ambient conditions on that day were 64 degrees F and partially sunny. Prior to performing the condition assessment, Mr. Palte became familiar with the site and went through all necessary site safety guidelines. Since the highway was not closed during the assessment, the inspection was performed behind the guardrail. Assessment generally occurred at each corner of the bridge (or at each wing wall).

General Bridge Assessment

Overall, the bridge appeared to be in good condition. As seen in picture SW-03, the southernmost precast prestressed concrete I-beam appeared to have a spall at the bottom of the beam near the third span. Corrosion appeared to be occurring at this spall location. The deck and parapets appeared to be in good condition, but since assessment occurred behind the guardrail, a detailed inspection was not possible.

Southwest Abutment

At the southwest abutment, the spall on the precast prestressed concrete I-beam was most evident (picture SW-03). In this location, there was a lot of vegetation covering the wing wall (picture SW-04). From the portions of the wing wall that were visible, there were no signs of cracks in the wing wall. The expansion joint (EJ) between the wing wall and abutment showed signs of movement. The EJ appeared to be a uniform width, but wing wall did appear to lean slightly towards the roadway. The EJ width was estimated to be 1 inch. The wing wall was estimated to be about 2 inches in from the face of the

abutment at the bottom of the wall and 4 inches at the top. The abutment appeared to be in good condition. There were two horizontal cracks, which did not appear to affect the integrity of the abutment. From this location, the parapet appeared to be in good overall condition and from the distance viewed of the parapet elevation, no cracks were apparent. At the end of the parapet, a horizontal crack was apparent (picture SW-11).

Southwest Abutment Pictures – these pictures represent the typical condition of the bridge deck, abutment and wing wall. See Attachment A for photo log of pre-construction pictures.

- SW-01: Overall Picture of South Side of Bridge
- SW-02: Southwest view of Bridge
- SW-03: Zoom of I-Beam Spall
- SW-04: Southwest Wing Wall
- SW-05: Southwest Abutment (1 of 4)
- SW-06: Southwest Abutment (2 of 4)
- SW-07: Southwest Abutment (3 of 4)
- SW-08: Southwest Abutment (4 of 4)
- SW-09: Southwest Bridge Deck (1 of 2)
- SW-10: Southwest Bridge Deck (2 of 2)
- SW-11: Southwest Parapet

Southeast Abutment

In this location, there were no signs of cracks in the wing wall (picture SE-03). The EJ between the wing wall and abutment showed signs of movement. The EJ did not appear to be a uniform width. The wing wall also appeared to lean slightly towards the roadway. The EJ between the wing wall and abutment was estimated to be 1-inch wide at the bottom and 1 1/2-inches at the top. The wing wall was estimated to be flush with the face of the abutment at the bottom and 2-inches in at the top. The abutment appeared to be in good condition. There were two horizontal cracks, which did not appear to affect the integrity of the abutment. From this location, the parapet appeared to be in good overall condition and from the distance viewed of the parapet elevation, no cracks were apparent. There appeared to be slight corrosion on the underside at the corner of the bridge deck (picture SE-08). At the end of the parapet, a horizontal crack was apparent.

Southeast Abutment Pictures – these pictures represent the typical condition of the bridge deck, abutment and wing wall. See Attachment A for photo log of pre-construction pictures.

- SE-01: West Abutment (1 of 2)
- SE-02: West Abutment (2 of 2)
- SE-03: Southeast Wing Wall
- SE-04: Southeast Abutment (1 of 3)
- SE-05: Southeast Abutment (2 of 3)
- SE-06: Southeast Abutment (3 of 3)
- SE-07: Southeast Parapet Elevation
- SE-08: Southeast Bridge Deck (1 of 4)

- SE-09: Southeast Bridge Deck (2 of 4)
- SE-10: Southeast Bridge Deck (3 of 4)
- SE-11: Southeast Bridge Deck (4 of 4)
- SE-12: Southeast Parapet

Northeast Abutment

In this location, there were no signs of cracks in the wing wall (picture NE-01). The EJ between the wing wall and abutment showed slight signs of movement. The EJ appeared to be a uniform width. The wing wall also appeared to lean slightly towards the roadway. The EJ was estimate to be 1-inch wide. The wing wall was estimated to be flush with the face of the abutment at the bottom and 2-inches in at the top. The abutment appeared to be in good condition. From this location, the parapet appeared to be in good overall condition and from the distance viewed of the parapet elevation, no cracks were apparent.

Northeast Abutment Pictures – these pictures represent the typical condition of the bridge deck, abutment and wing wall. See Attachment A for photo log of pre-construction pictures.

- NE-01: Northeast Wing Wall (1 of 2)
- NE-02: Northeast Wing Wall (2 of 2)
- NE-03: Northeast Abutment (1 of 2)
- NE-04: Northeast Abutment (2 of 2)
- NE-05: Northeast Parapet Elevation
- NE-06: Northeast Wing Wall EJ
- NE-07: Northeast Bridge Deck (1 of 3)
- NE-08: Northeast Bridge Deck (2 of 3)
- NE-09: Northeast Bridge Deck (3 of 3)
- NE-10: Northeast Parapet (1 of 2)
- NE-11: Northeast Parapet (2 of 2)

Northwest Abutment

In this location, there were no signs of cracks in the wing wall (picture NW-04). The EJ between the wing wall and abutment showed signs of movement. The EJ did not appear to be a uniform width. The wing wall also appeared to lean slightly towards the roadway. The EJ between the wing wall and abutment was estimated to be 1/2-inch wide at the bottom and 1 1/2-inches at the top. The wing wall was estimated to be flush with the face of the abutment at the bottom and 1 inch in at the top. The abutment appeared to be in good condition. The abutment appeared to be in good condition. There were two horizontal cracks, which did not appear to affect the integrity of the abutment. From this location, the parapet appeared to be in good overall condition and from the distance viewed of the parapet elevation, no cracks were apparent.

Northwest Abutment Pictures – these pictures represent the typical condition of the bridge deck, abutment and wing wall. See Attachment A for photo log of pre-construction pictures.

- NW-01: East Abutment (1 of 3)
- NW-02: East Abutment (2 of 3)
- NW-03: East Abutment (3 of 3)
- NW-04: Northwest Wing Wall
- NW-05: Northwest Abutment (1 of 2)
- NW-06: Northwest Abutment (2 of 2)
- NW-07: Northwest Parapet Elevation
- NW-08: Northwest Bridge Deck (1 of 3)
- NW-09: Northwest Bridge Deck (2 of 3)
- NW-10: Northwest Bridge Deck (3 of 3)
- NW-11: Northwest Parapet (1 of 2)
- NW-12: Northwest Parapet (2 of 2)

Pre-Construction Overall Assessment

Overall, the bridge appeared in a good structural condition. The observations were generally typically of a bridge of this age.

Post-Construction Condition Assessment

General

On the morning of October 22, 2012 a post-construction condition assessment of the Route 59 Bridge over the DuPage River was conducted by Matt Palte of ARCADIS. Ambient conditions on that day were 60 degrees F and cloudy. Prior to performing the condition assessment, Mr. Palte became familiar with the site and went through all necessary site safety guidelines. Since the outside highway lanes were closed during the assessment, the inspection was performed behind the construction barriers.

Overall Assessment

Overall, the bridge appeared to be in same condition as observed in the pre-construction assessment. The bridge showed no signs of movement or settling during the construction phase. There were no signs of additional cracking on the bridge, bridge abutment, or bridge wing walls. The expansion joints between the wing wall and bridge abutments, and the expansion joint between the bridge and the approach slabs appeared to be in the same condition and width as observed in the pre-construction assessment. The Attachment B photo log represents the condition observed during the post-construction condition assessment. Post-construction photos were intended to be taken at the same locations as the pre-construction photos. Three photos that were taken during the pre-construction assessment were not captured during the post-construction assessment (photos SE-11, SW-03, NE-06, and NE-09).

Bridge Monitoring

Prior to and following the completion of construction, points on the wing walls were surveyed to monitor construction and assess that the construction did not adversely affect the bridge. Attachment C contains the survey and vibration monitoring data. From the data, it is apparent that amount of movement that occurred during the construction was minimal. As noted in Attachment C, there were instances where the vibration threshold of 1.0 inches per second was exceeded. In each instance, activities were stopped, and the construction supervisor was notified of the exceedance. The causes of the exceedances were temporary in nature and, in most cases, were due to pulling up on the soldier pile during driving activities. In each instance it was determined that proceeding with pile driving activities was acceptable without adverse impact.

Conclusion

Based on the conditions observed during the pre-construction and post-construction assessment and the survey data collected, it is my best professional judgment that the construction did not adversely affect or damage the existing bridge.

Attachment A - Pre Construction

September 13, 2012

Southwest Bridge Abutment



SW-01: Overall Picture of South Side of Bridge



SW-02: Southwest view of Bridge



SW-03: Zoom of I-Beam Spall



SW-04: Southwest Wing Wall



SW-05: Southwest Abutment (1 of 4)



SW-06: Southwest Abutment (2 of 4)



SW-07: Southwest Abutment (3 of 4)



SW-08: Southwest Abutment (4 of 4)



SW-09: Southwest Bridge Deck (1 of 2)



SW-10: Southwest Bridge Deck (2 of 2)



SW-11: Southwest Parapet

Southeast Bridge Abutment



SE-01: West Abutment (1 of 2)



SE-02: West Abutment (2 of 2)



SE-03: Southeast Wing Wall



SE-04: Southeast Abutment (1 of 3)



SE-05: Southeast Abutment (2 of 3)



SE-06: Southeast Abutment (3 of 3)



SE-07: Southeast Parapet Elevation



SE-08: Southeast Bridge Deck (1 of 4)



SE-09: Southeast Bridge Deck (2 of 4)



SE-10: Southeast Bridge Deck (3 of 4)



SE-11: Southeast Bridge Deck (4 of 4)



SE-12: Southeast Parapet

Northeast Bridge Abutment



NE-01: Northeast Wing Wall (1 of 2)



NE-02: Northeast Wing Wall (2 of 2)



NE-03: Northeast Abutment (1 of 2)



NE-04: Northeast Abutment (2 of 2)



NE-05: Northeast Parapet Elevation



NE-06: Northeast Wing Wall EJ



NE-07: Northeast Bridge Deck (1 of 3)



NE-08: Northeast Bridge Deck (2 of 3)



NE-09: Northeast Bridge Deck (3 of 3)



NE-10: Northeast Parapet (1 of 2)



NE-11: Northeast Parapet (2 of 2)

Northwest Bridge Abutment



NW-01: East Abutment (1 of 3)



NW-02: East Abutment (2 of 3)



NW-03: East Abutment (3 of 3)



NW-04: Northwest Wing Wall



NW-05: Northwest Abutment (1 of 2)



NW-06: Northwest Abutment (2 of 2)



NW-07: Northwest Parapet Elevation



NW-08: Northwest Bridge Deck (1 of 3)



NW-09: Northwest Bridge Deck (2 of 3)



NW-10: Northwest Bridge Deck (3 of 3)



NW-11: Northwest Parapet (1 of 2)



NW-12: Northwest Parapet (2 of 2)

Attachment B - Post Construction

October 22, 2012

Southwest Bridge Abutment



SW-01: Overall Picture of South Side of Bridge



SW-02: Southwest view of Bridge

<Picture not taken>

SW-03: Zoom of I-Beam Spall



SW-04: Southwest Wing Wall



SW-05: Southwest Abutment (1 of 4)



SW-06: Southwest Abutment (2 of 4)



SW-07: Southwest Abutment (3 of 4)



SW-08: Southwest Abutment (4 of 4)



SW-09: Southwest Bridge Deck (1 of 2)



SW-10: Southwest Bridge Deck (2 of 2)



SW-11: Southwest Parapet

Southeast Bridge Abutment



SE-01: West Abutment (1 of 2)



SE-02: West Abutment (2 of 2)



SE-03: Southeast Wing Wall



SE-04: Southeast Abutment (1 of 3)



SE-05: Southeast Abutment (2 of 3)



SE-06: Southeast Abutment (3 of 3)



SE-07: Southeast Parapet Elevation



SE-08: Southeast Bridge Deck (1 of 4)



SE-09: Southeast Bridge Deck (2 of 4)



SE-10: Southeast Bridge Deck (3 of 4)

<Picture not taken>

SE-11: Southeast Bridge Deck (4 of 4)



SE-12: Southeast Parapet

Northeast Bridge Abutment



NE-01: Northeast Wing Wall (1 of 2)



NE-02: Northeast Wing Wall (2 of 2)



NE-03: Northeast Abutment (1 of 2)



NE-04: Northeast Abutment (2 of 2)



NE-05: Northeast Parapet Elevation

<Picture not taken>

NE-06: Northeast Wing Wall EJ



NE-07: Northeast Bridge Deck (1 of 3)



NE-08: Northeast Bridge Deck (2 of 3)

<Picture not taken>

NE-09: Northeast Bridge Deck (3 of 3)



NE-10: Northeast Parapet (1 or 2)

Northwest Bridge Abutment



NW-01: East Abutment (1 of 3)



NW-02: East Abutment (2 of 3)



NW-03: East Abutment (3 of 3)



NW-04: Northwest Wing Wall



NW-05: Northwest Abutment (1 of 2)



NW-06: Northwest Abutment (2 of 2)



NW-07: Northwest Parapet Elevation



NW-08: Northwest Bridge Deck (1 of 3)



NW-09: Northwest Bridge Deck (2 of 3)



NW-10: Northwest Bridge Deck (3 of 3)



NW-11: Northwest Parapet (1 of 2)



NW-12: Northwest Parapet (2 of 2)

Attachment C

Tel. (630) 293-8900
Fax (630) 293-8902

Steinbrecher Land Surveyors, Inc.

Professional Land Surveying since 1929

141 S. Neltnor Blvd., West Chicago, IL 60185-2844
Rich@slandsurveyors.com

November 5, 2012

To Whom It May Concern:

This is to certify that we, Steinbrecher Land Surveyors, Inc., have taken elevations on the wing walls of the IL Route 59 bridge over Kress Creek related to West Chicago Benchmark WC430 – bronze disk at the intersection of Wilson St. & Joliet St., Elevation = 712.97 (NGVD 29)
Both pre and post construction as follows:

Pre-construction (9-18-12)

NW wing wall – 712.68
- 706.11

NE wing wall – 711.70
-705.78

SE wing wall – 711.94
-705.52

SW wing wall – 712.44
- 706.04

Post-construction (10-29-12)

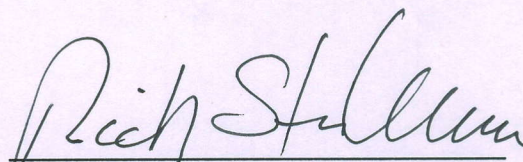
NW wing wall – 712.70
- 706.09

NE wing wall – 711.69
- 705.78

SE wing wall – 711.94
- 705.50

SW wing wall – 712.44
-706.05




Richard J. Steinbrecher
IL Professional Land Surveyor 3853

September 21, 2012

Mr. Martin Folan
Sevenson Environmental Services

Reference: Vibration Monitoring
Vibratory Driven Soldier Pile Installation
Illinois Route 59 over Kess Creek
West Chicago, Illinois
Wang No. 920-02-01

Dear Mr. Folan:

The results of the vibration monitoring data for the above referenced project are summarized in the table below. The table includes data from 9/19/2012 and 9/20/2012. Vibration data at the northwest wing wall showed peak particle velocities greater than the specified threshold of 1.0 inches per second and the data for these events is shown in the attached plots.

Table 1: Summary of Vibration Data

Soldier Pile ID	Start Time	End Time	Length Driven (feet)	Peak Particle Velocity (in/sec)
NE-1, 9/19/2012	11:27 AM	12:47 PM	23	0.22
NE-2, 9/19/2012	12:54 AM	1:05 PM	23	0.30
NE-3, 9/19/2012	1:29 PM	1:46 PM	2	0.22
NE-4, 9/19/2012	2:05 PM	2:43 PM	24	0.20
NE-5, 9/19/2012	2:55 PM	3:16 PM	24	0.09
NW-1, 9/20/2012	9:49 AM	10:22 AM	40	1.28
NW-2, 9/20/2012	10:33 AM	11:28 AM	40	1.28
NW-3, 9/20/2012	11:39 AM	1:20 PM	40	0.60
NW-4, 9/20/2012	1:45 PM	2:10 PM	23	0.41

NW-6, 9/20/2012	2:19 PM	2:39 PM	21	0.51
NW-8, 9/20/2012	2:47 PM	3:06 PM	24	0.31

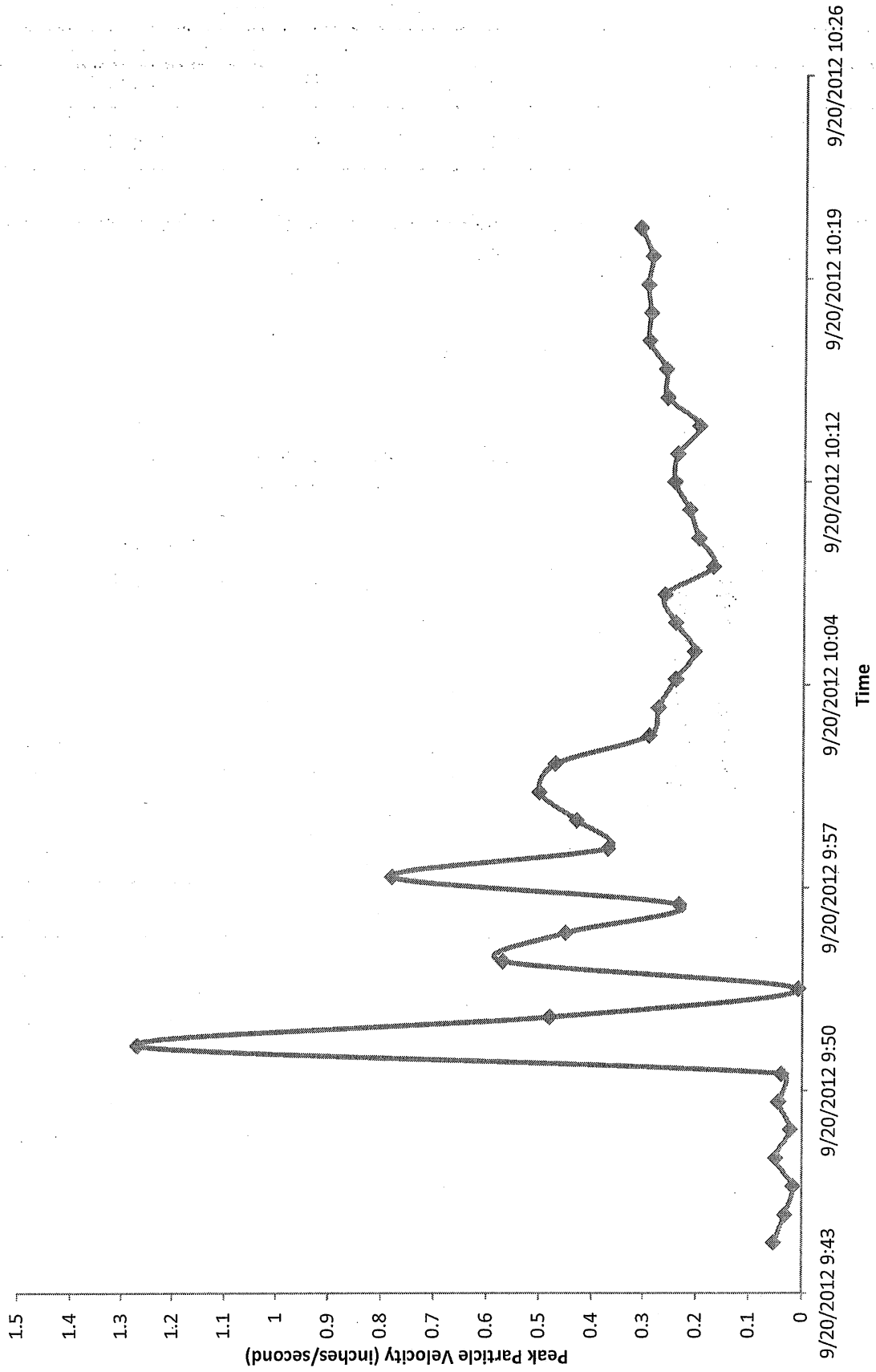
It is a pleasure to assist Sevenson Environmental Services in this phase of the project. Please contact us if there are any questions or concerns.

Respectfully Submitted,
WANG ENGINEERING, INC.

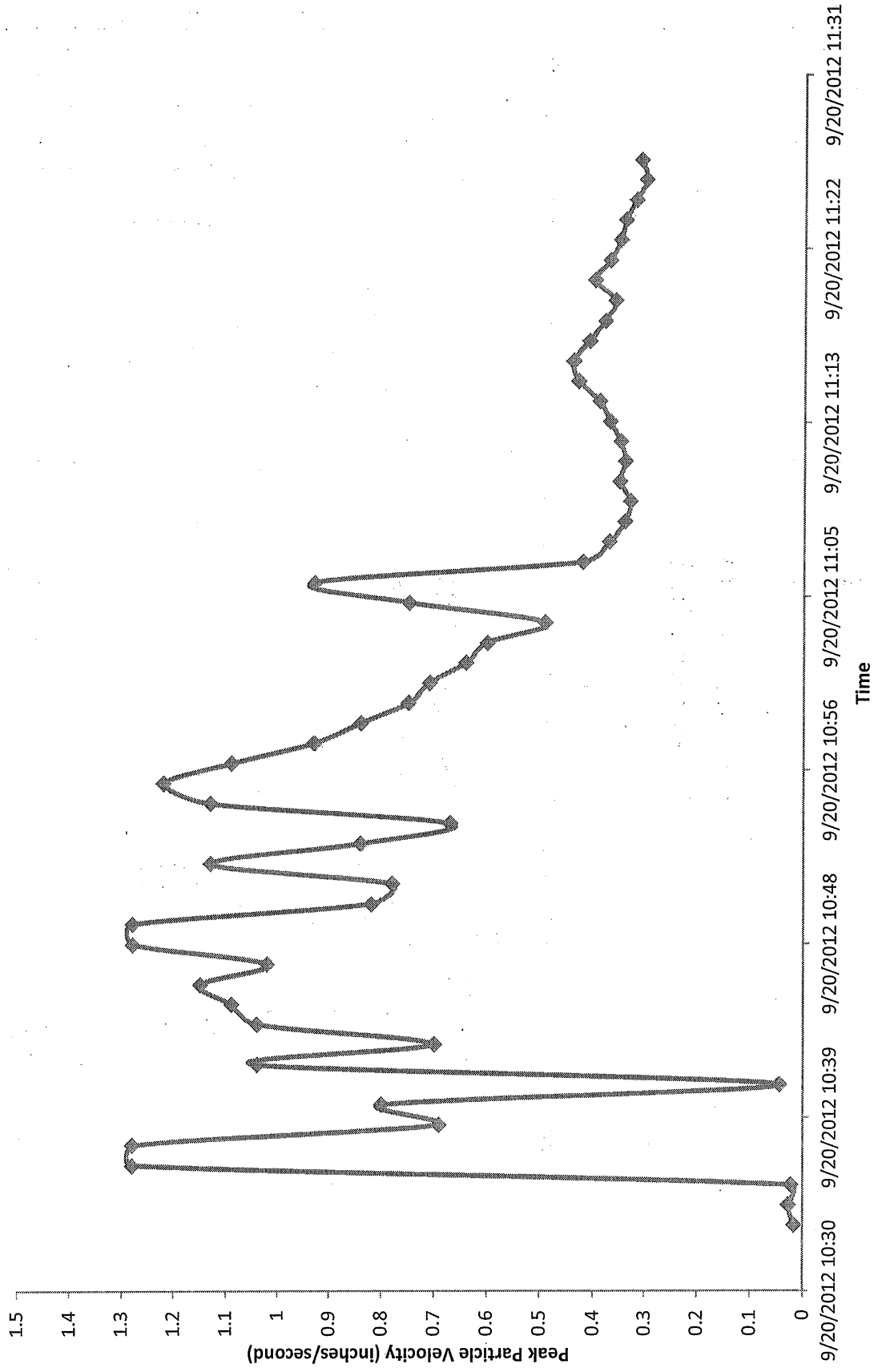
Mickey L. Snider, P.E.
Senior Geotechnical Engineer

Corina T. Farez, P.E., P.G.
Vice President

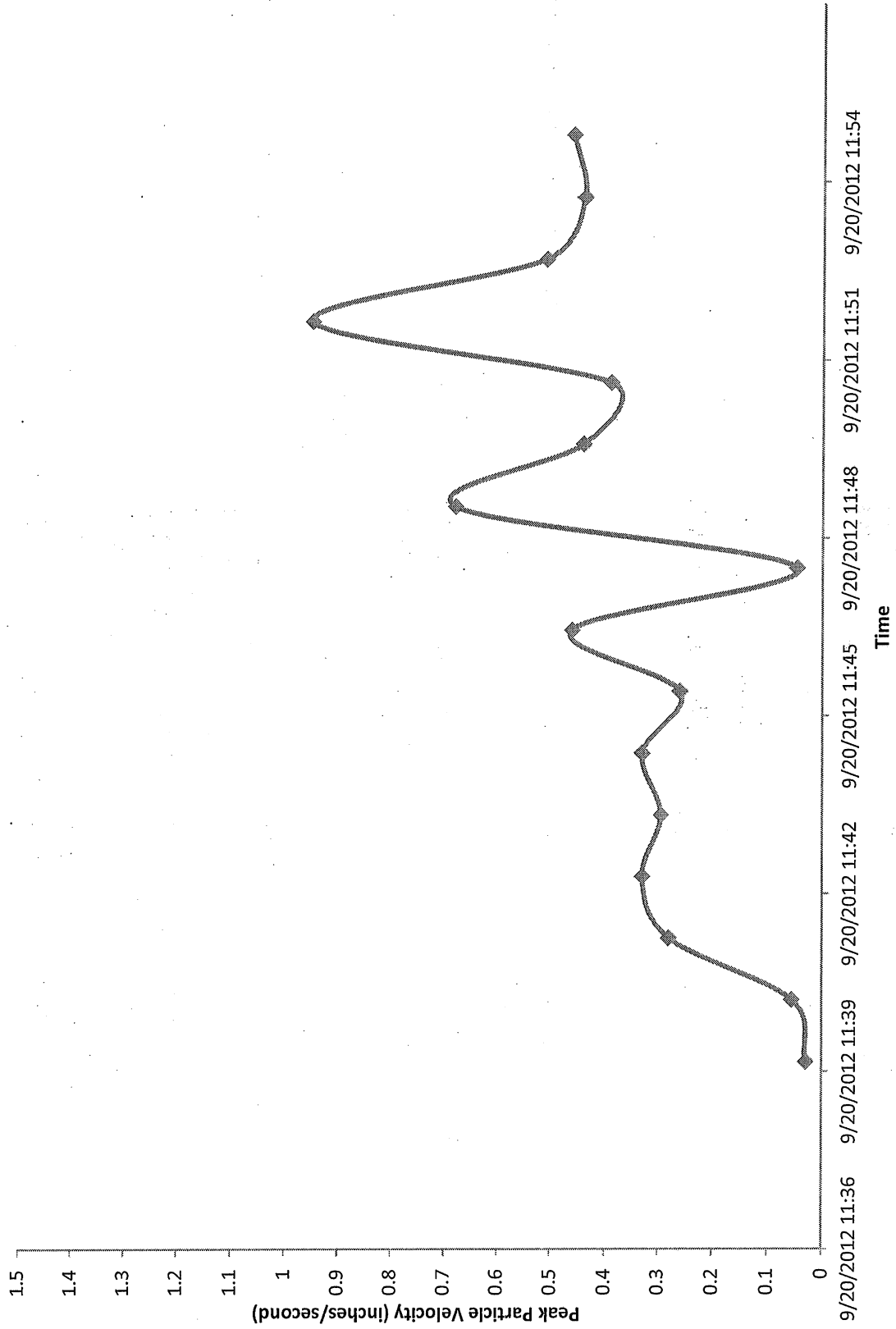
**Soldier Pile NW-1
Driven 9/20/2012**



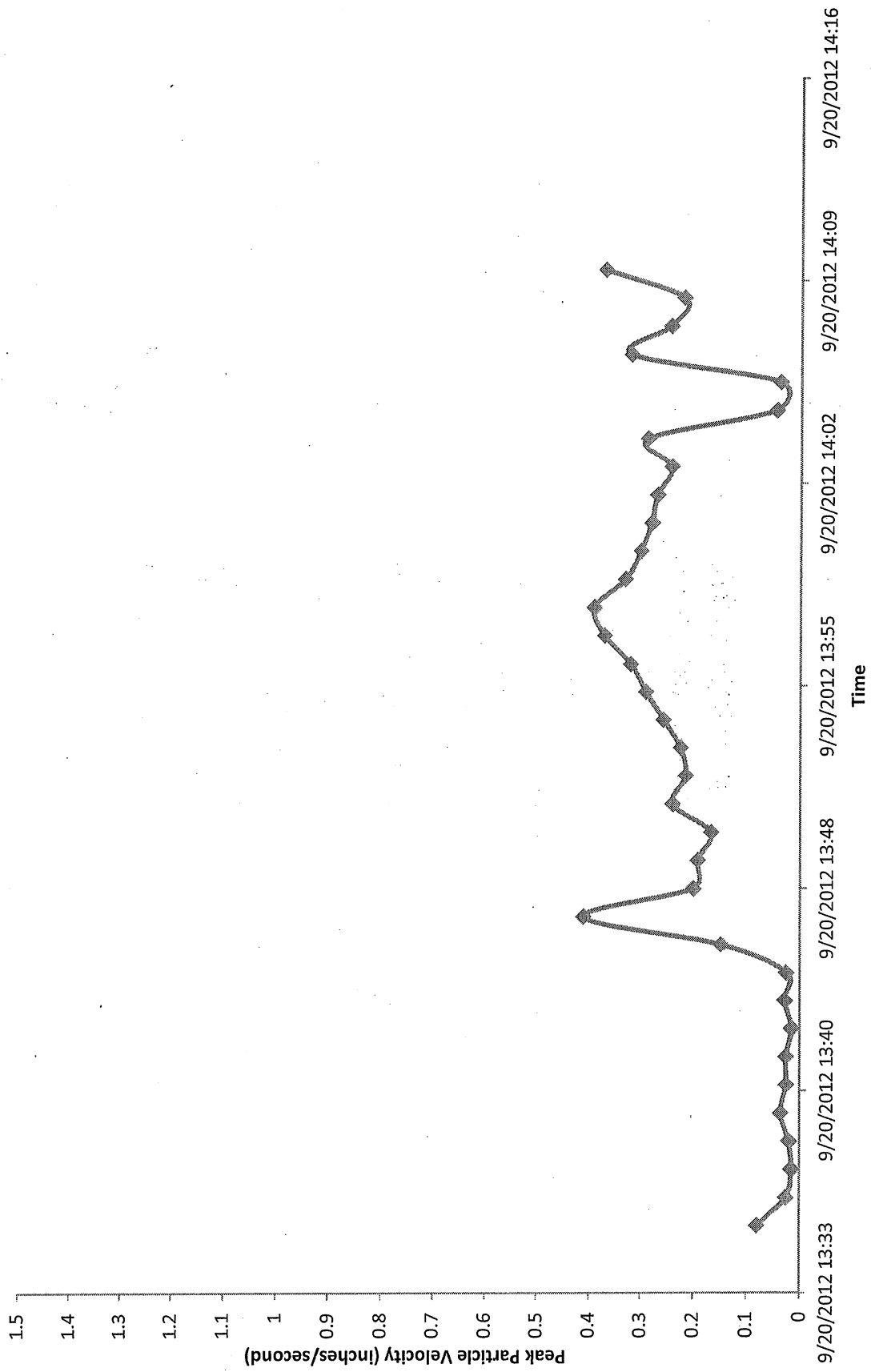
**Soldier Pile NW-2
Driven 9/20/2012**



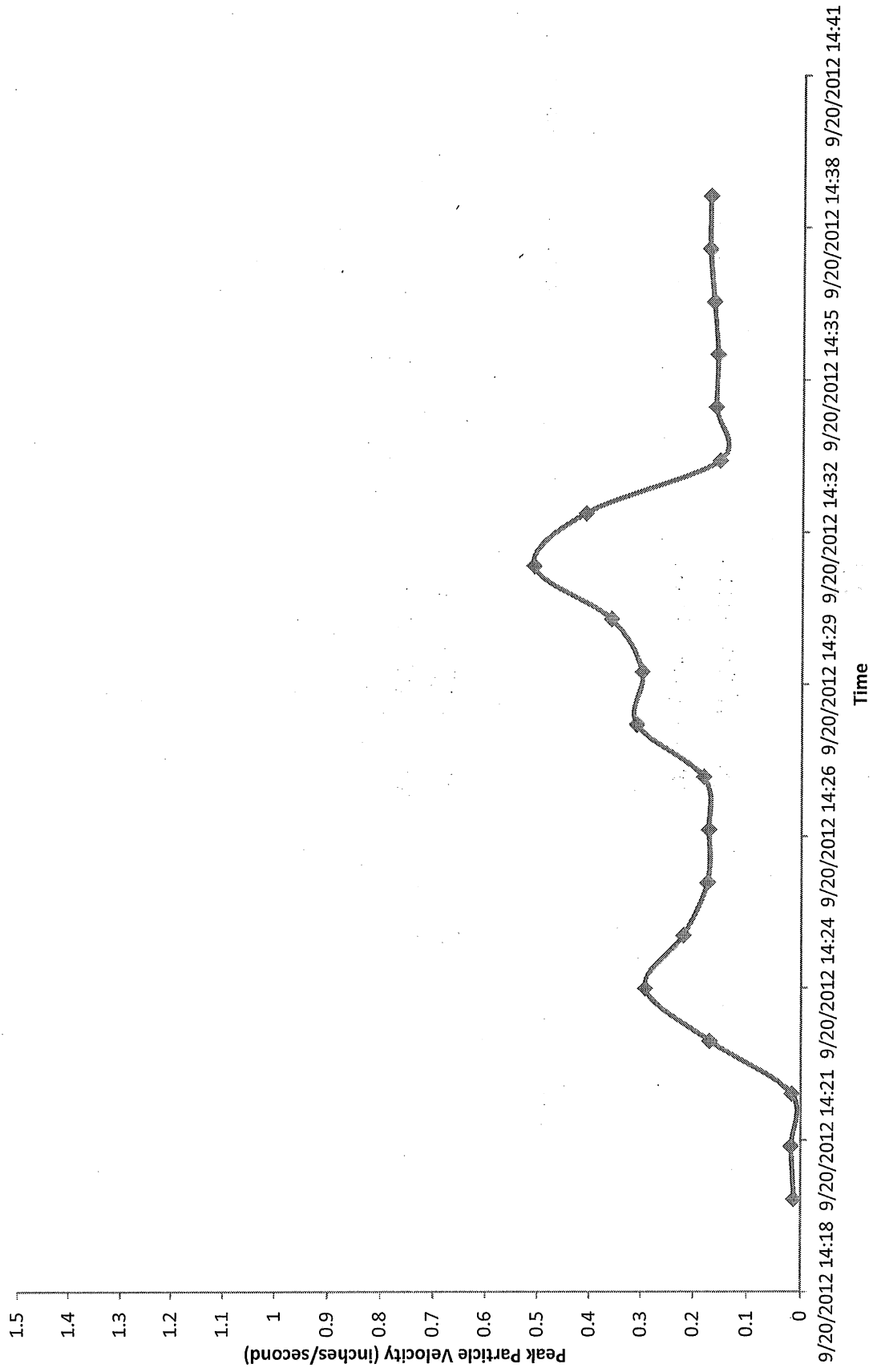
**Soldier Pile NW-3
Driven 9/20/2012**



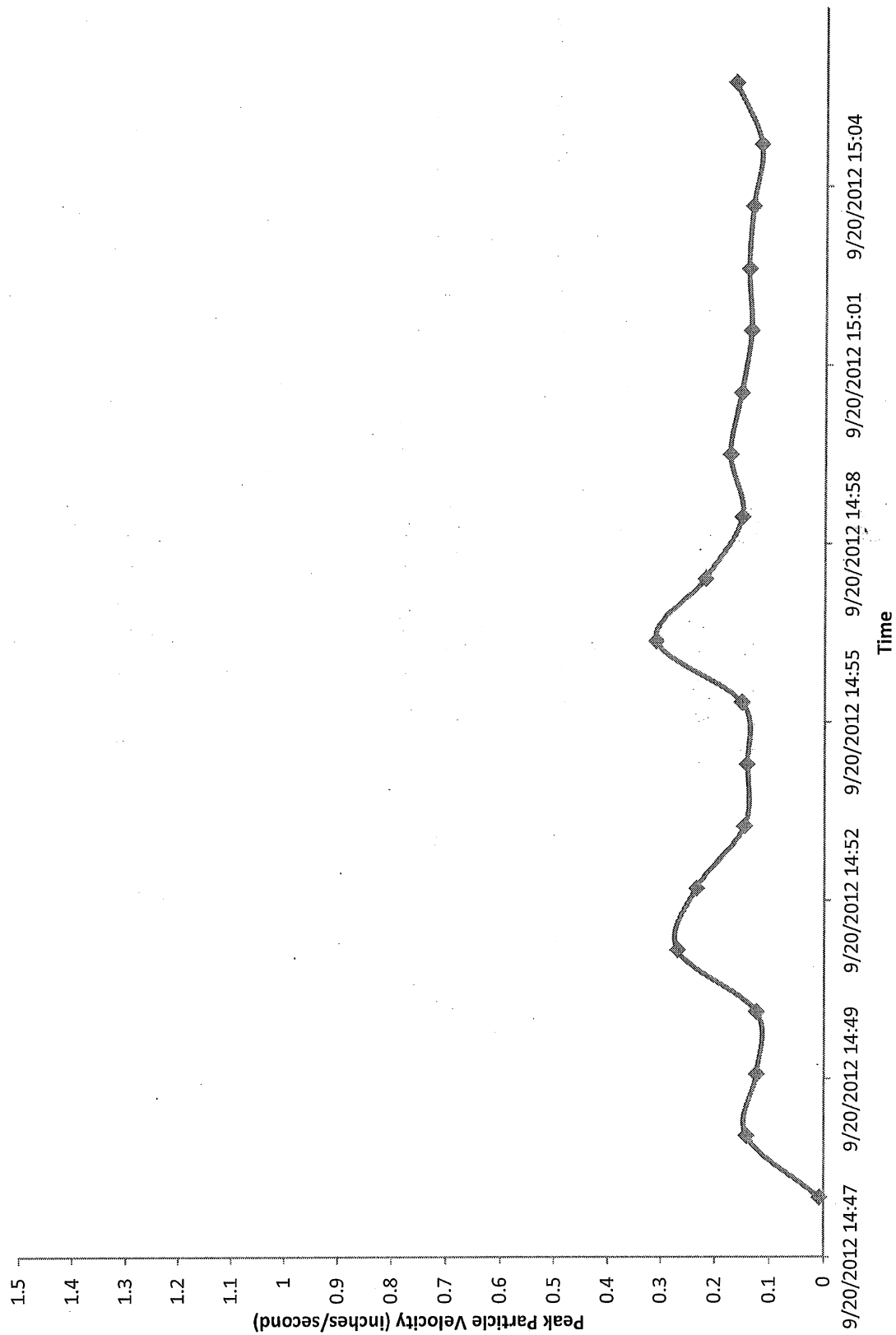
**Soldier Pile NW-4
Driven 9/20/2012**



**Soldier Pile NW-6
Driven 9/20/2012**



**Soldier Pile NW-8
Driven 9/20/2012**



September 24, 2012

Mr. Martin Folan
Sevenson Environmental Services

Reference: Vibration Monitoring
Vibratory Driven Soldier Pile Installation
Illinois Route 59 over Kess Creek
West Chicago, Illinois
Wang No. 920-02-01

Dear Mr. Folan:

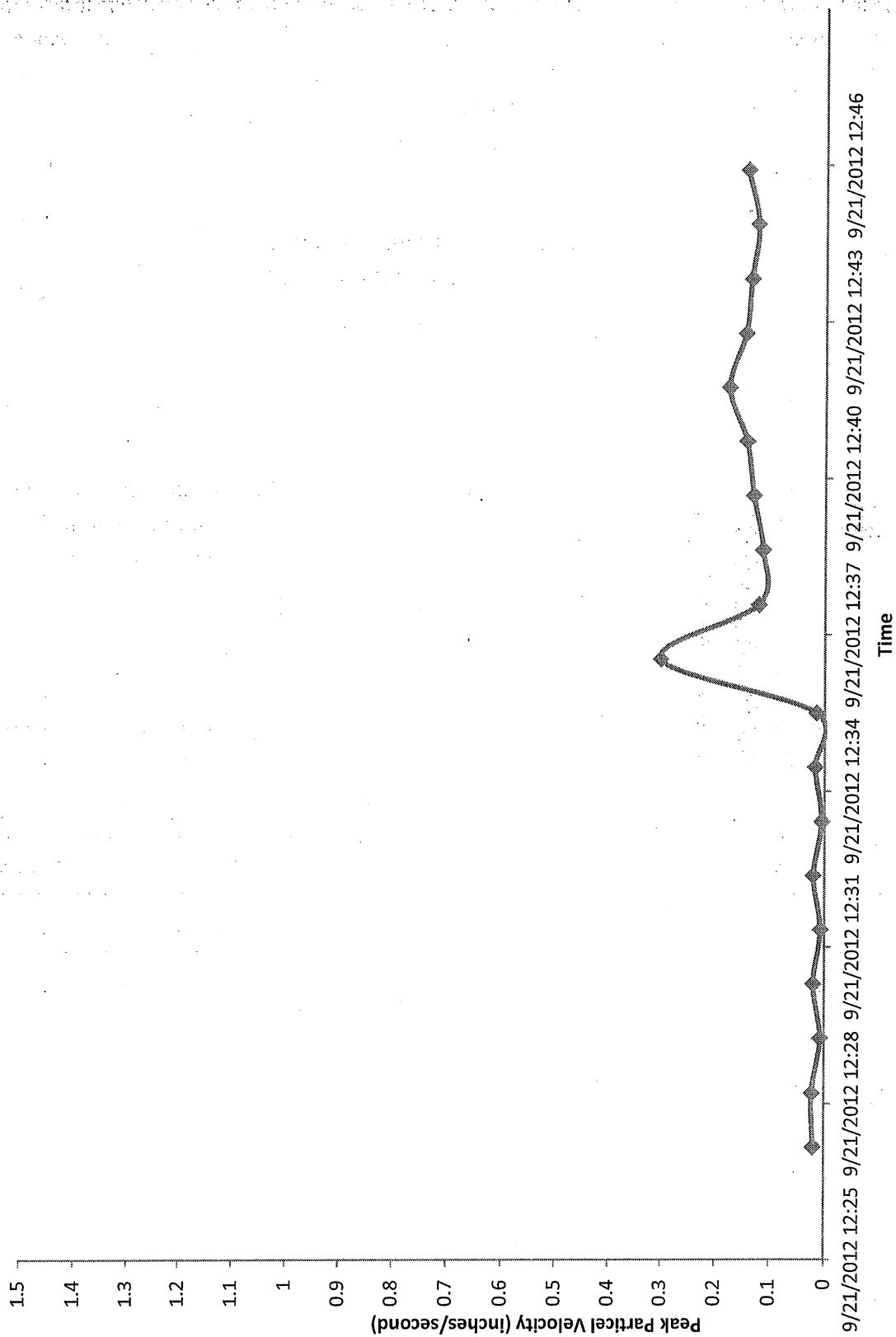
The results of the vibration monitoring data for the above referenced project are summarized in the table below. The table includes data from 9/21/2012. Vibration data at the northeast wing wall showed peak particle velocities greater than the specified threshold of 1.0 inches per second and the data for these events is shown in the attached plots.

Table 1: Summary of Vibration Data

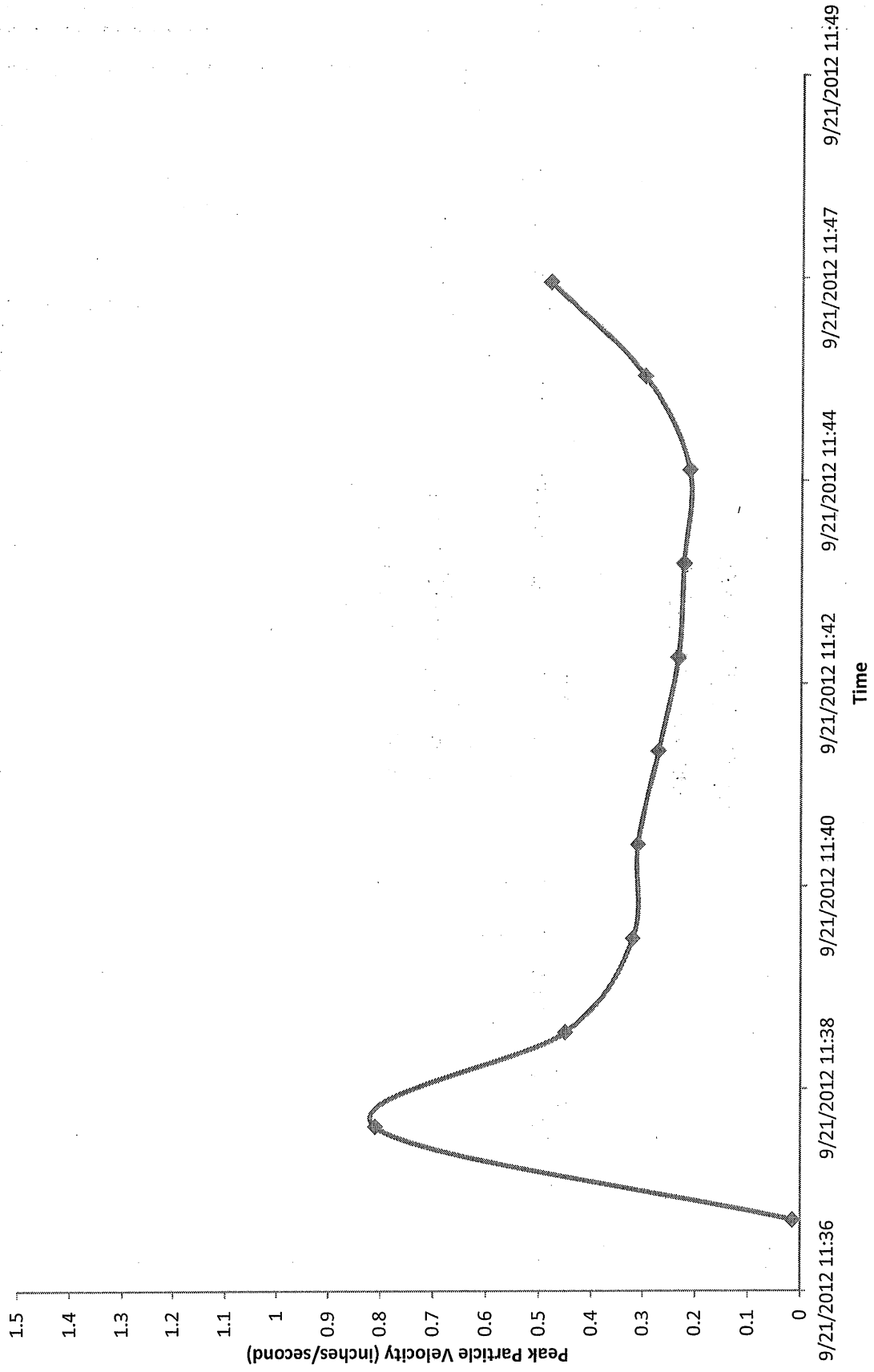
Soldier Pile ID	Start Time	End Time	Length Driven (feet)	Peak Particle Velocity (in/sec)
NE-5, 9/21/2012	8:05 AM	8:18 AM	24 to 39	0.53
NE-4, 9/21/2012	8:25 AM	8:45 AM	24 to 39	0.76
NE-3, 9/21/2012	9:53 AM	11:21 AM	0 to 40	1.26
NE-2, 9/21/2012	11:36 AM	11:47 AM	23 to 39	0.81
NE-1, 9/21/2012	12:27 PM	12:46 PM	23 to 40	0.30

2/7

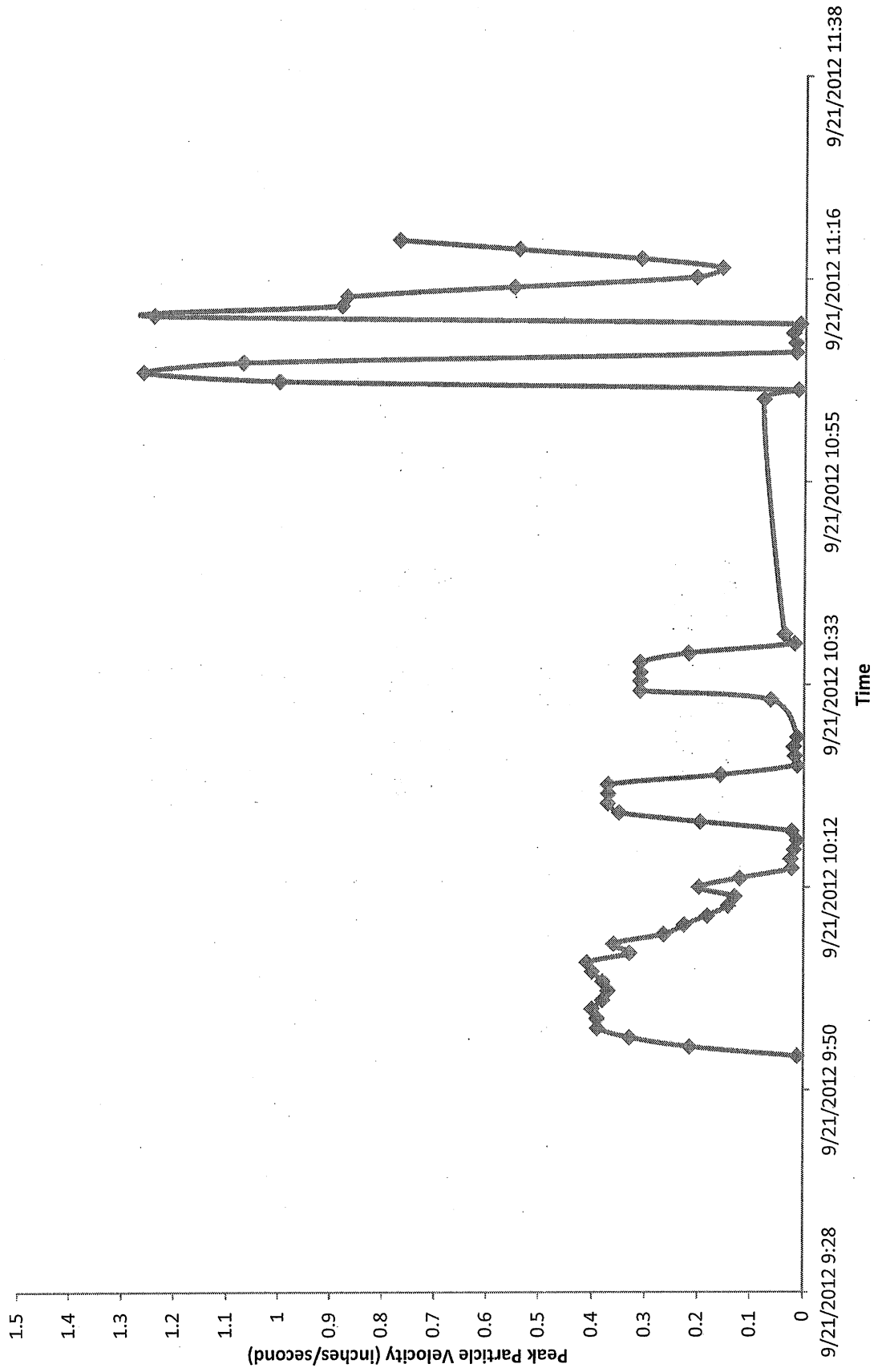
**Soldier Pile NE-1
Driven 9/21/2012**



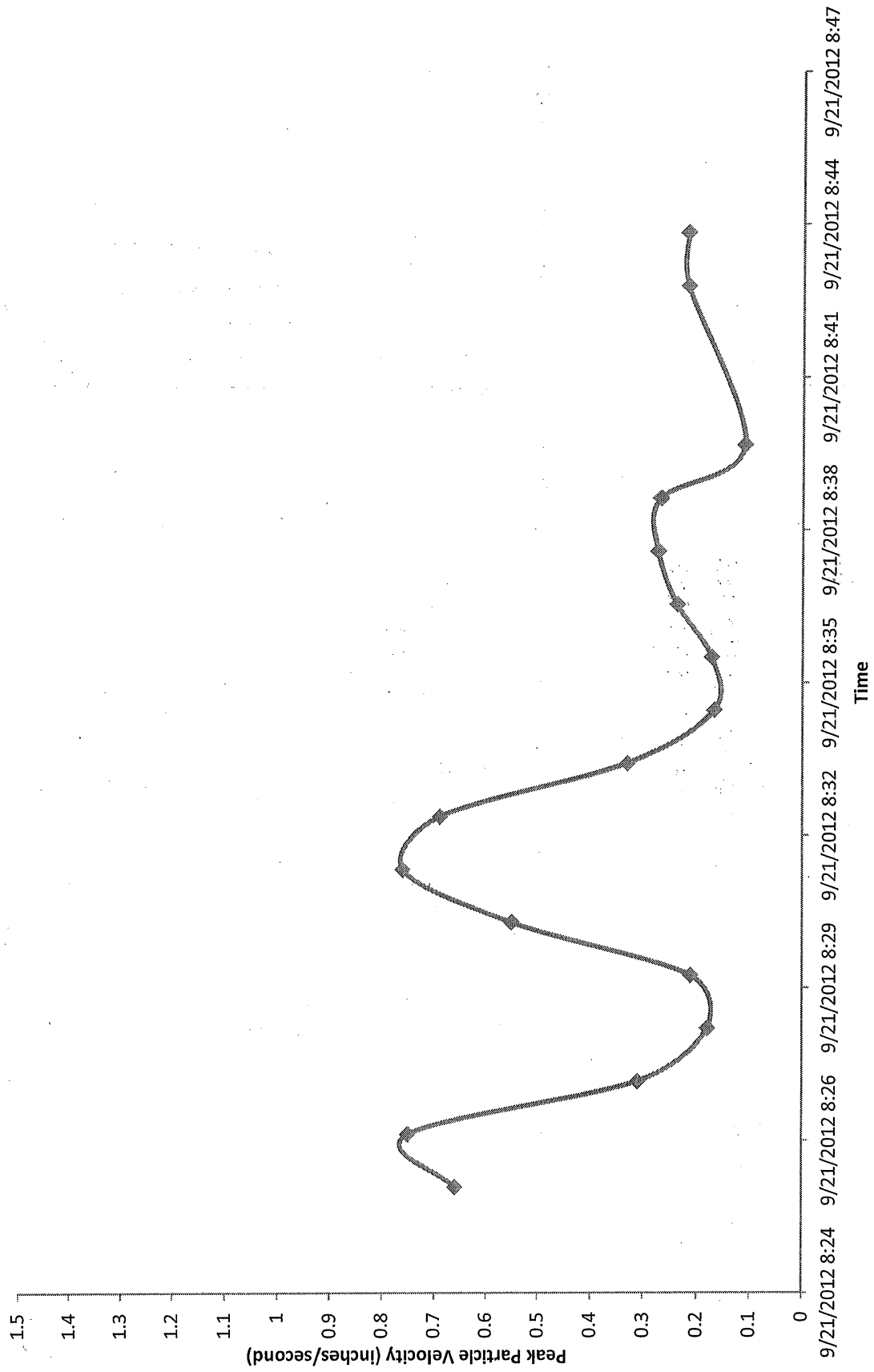
**Soldier Pile NE-2
Driven 9/21/2012**



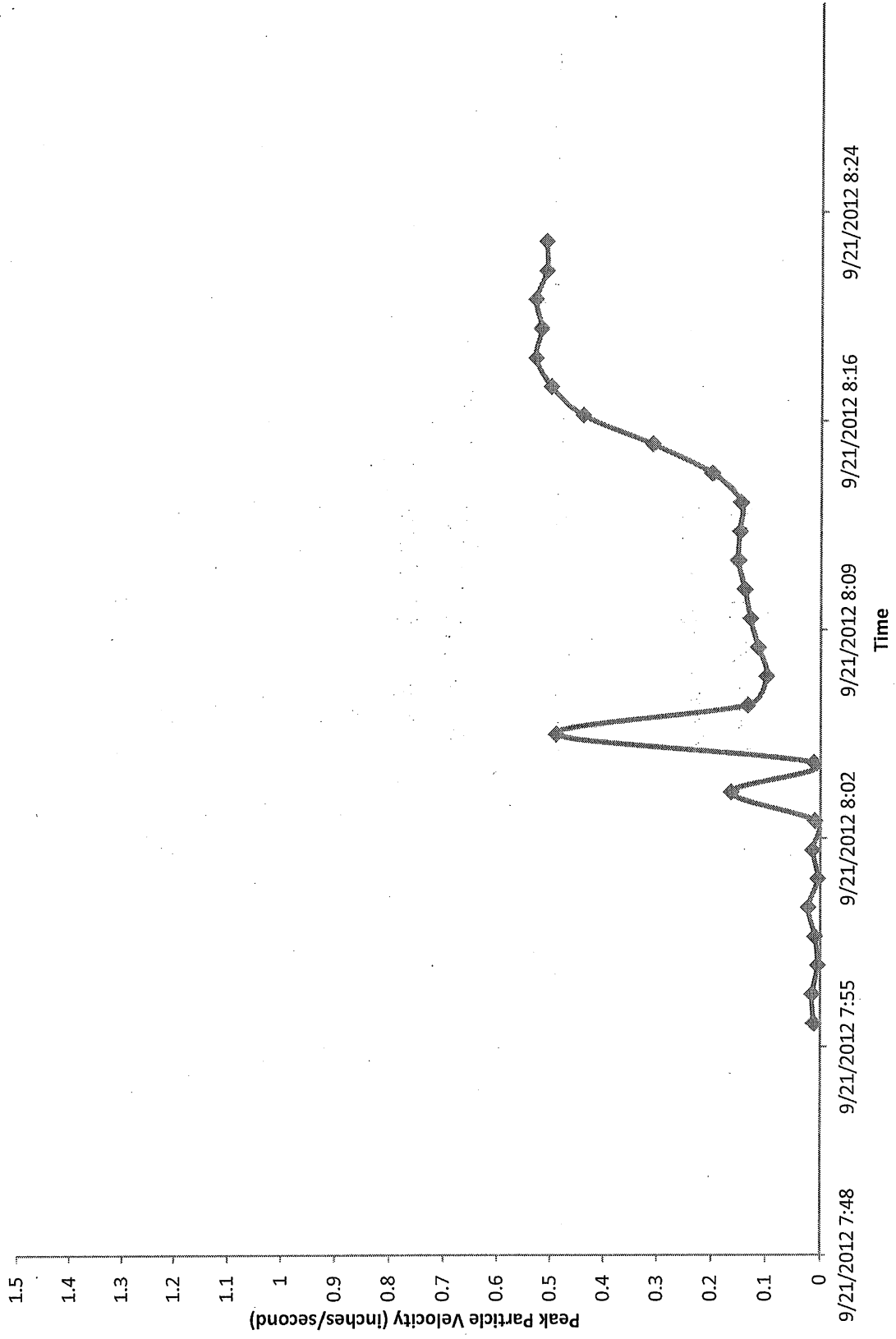
Soldier Pile NE-3
Driven 9/21/2012



**Soldier Pile NE-4
Driven 9/21/2012**



**Soldier Pile NE-5
Driven 9/21/2012**



September 26, 2012

Mr. Martin Folan
Sevenson Environmental Services

9/24/12

9/25/12

Reference: Vibration Monitoring
Vibratory Driven Soldier Pile Installation
Illinois Route 59 over Kess Creek
West Chicago, Illinois
Wang No. 920-02-01

Dear Mr. Folan:

The results of the vibration monitoring data for the above referenced project are summarized in the table below. The table includes data from 9/24/2012 and 9/25/2012. The vibration data do not show peak particle velocities greater than the specified threshold of 1.0 inches per second.

Table 1: Summary of Vibration Data

Soldier Pile ID	Start Time	End Time	Length Driven (feet)	Peak Particle Velocity (in/sec)
NW-4, 9/24/2012	8:26 AM	8:37 AM	23 to 39	1.28
NW-6, 9/24/2012	8:38 AM	8:46 AM	21 to 39	0.57
NW-8, 9/24/2012	9:01 AM	9:10 AM	24 to 39	0.35
NW-5, 9/24/2012	10:37 AM	11:17 AM	39	0.37
NW-7, 9/24/2012	10:53 AM	11:26 AM	39	0.243
NW-9, 9/24/2012	1:05 PM	2:00 PM	40	0.27
NW-10, 9/24/2012	1:31 PM	2:07 PM	40	0.15
NW-11, 9/24/2012	3:01 PM	4:10 PM	40	0.14
NW-12, 9/24/2012	3:17 PM	3:31 PM	40	0.15
NW-13, 9/24/2012	3:37 PM	4:19 PM	40	0.09

NW-14, 9/25/2012	9:45 AM	4:42 PM	39	0.28
NW-15, 9/25/2012	10:02 AM	11:06 AM	36	0.20
NW-16, 9/25/2012	11:13 AM	12:49 PM	34	0.55

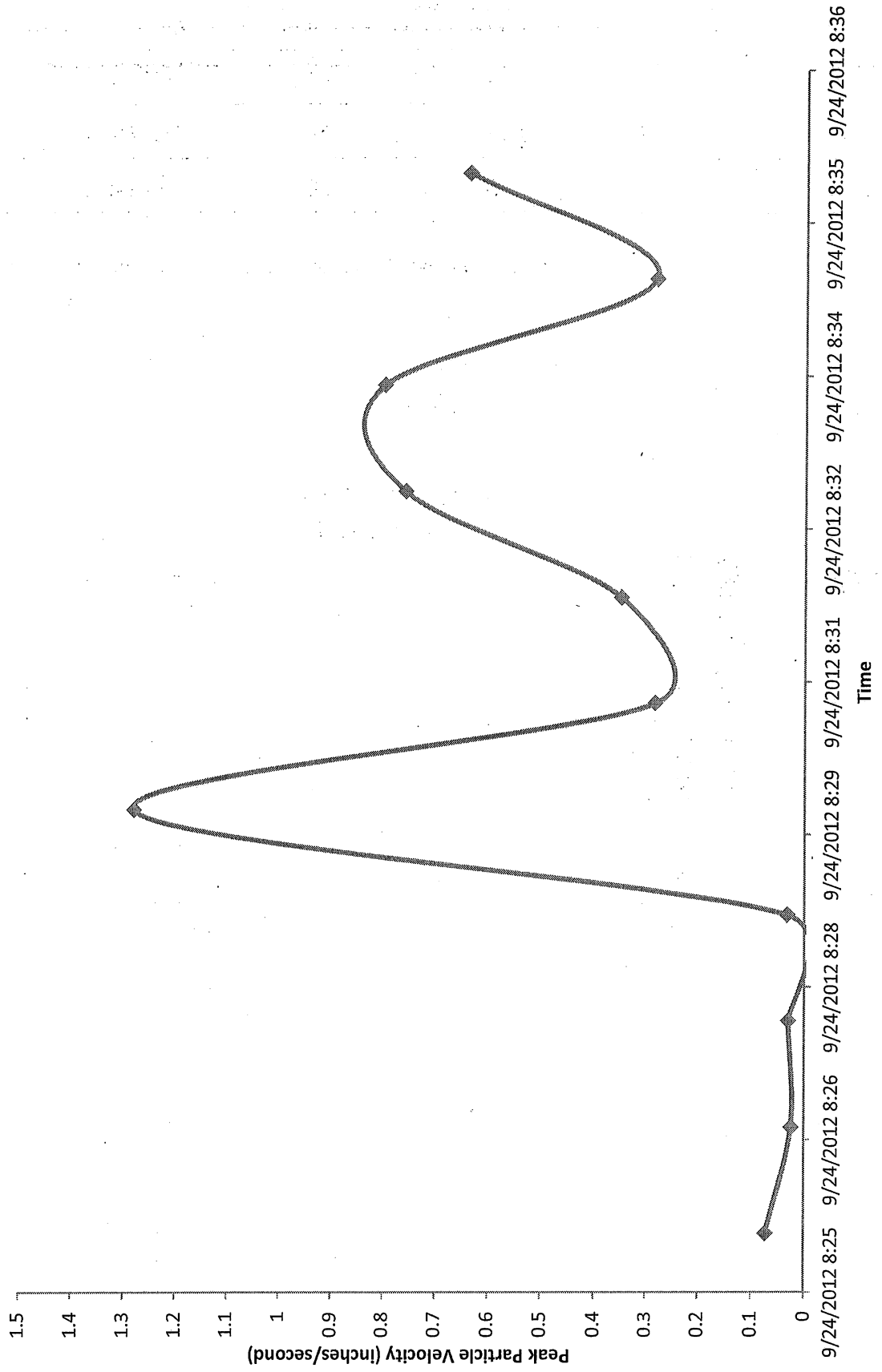
It is a pleasure to assist Sevenson Environmental Services in this phase of the project. Please contact us if there are any questions or concerns.

Respectfully Submitted,
WANG ENGINEERING, INC.

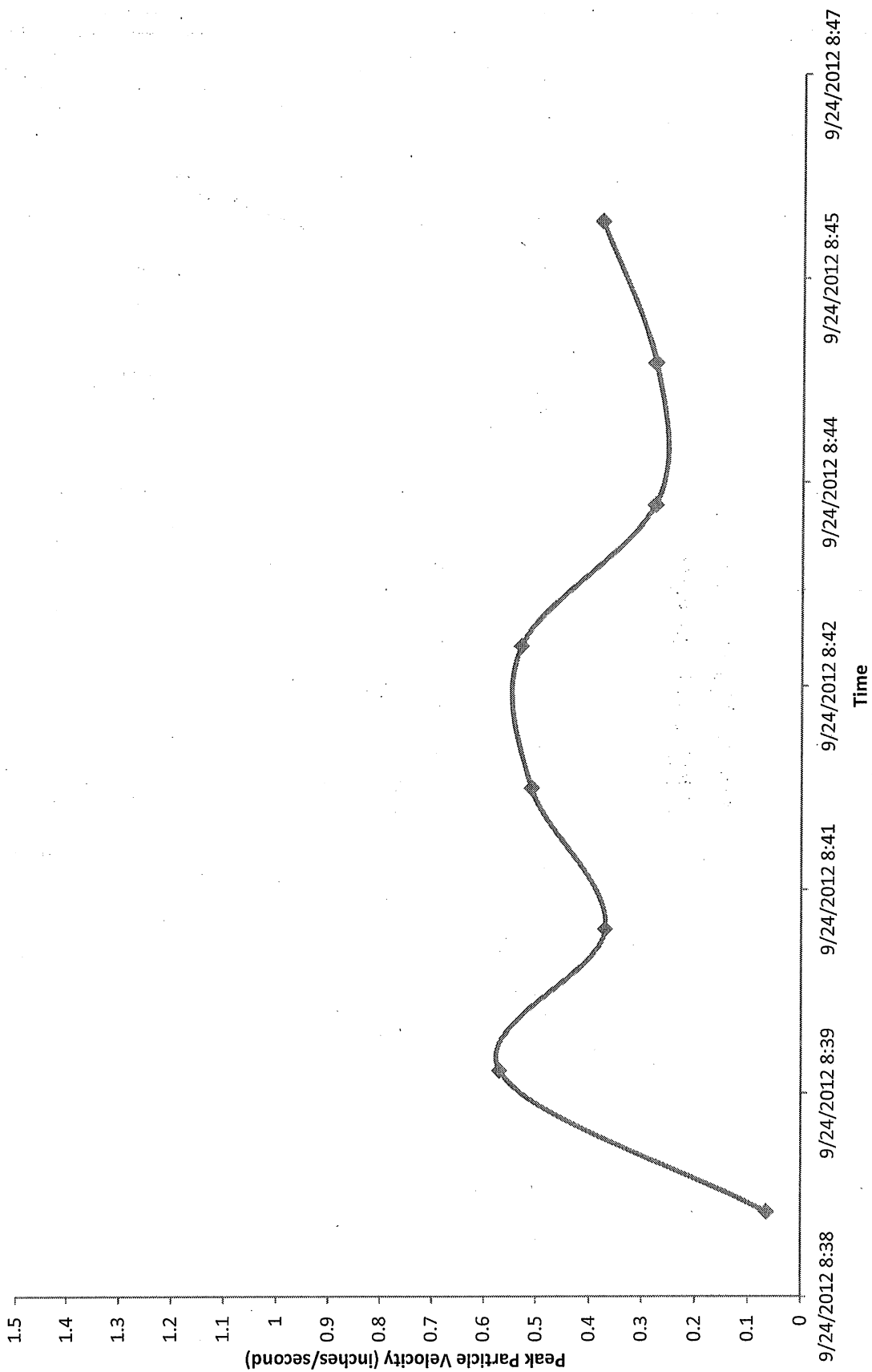
Mickey L. Snider, P.E.
Senior Geotechnical Engineer

Corina T. Farez, P.E., P.G.
Vice President

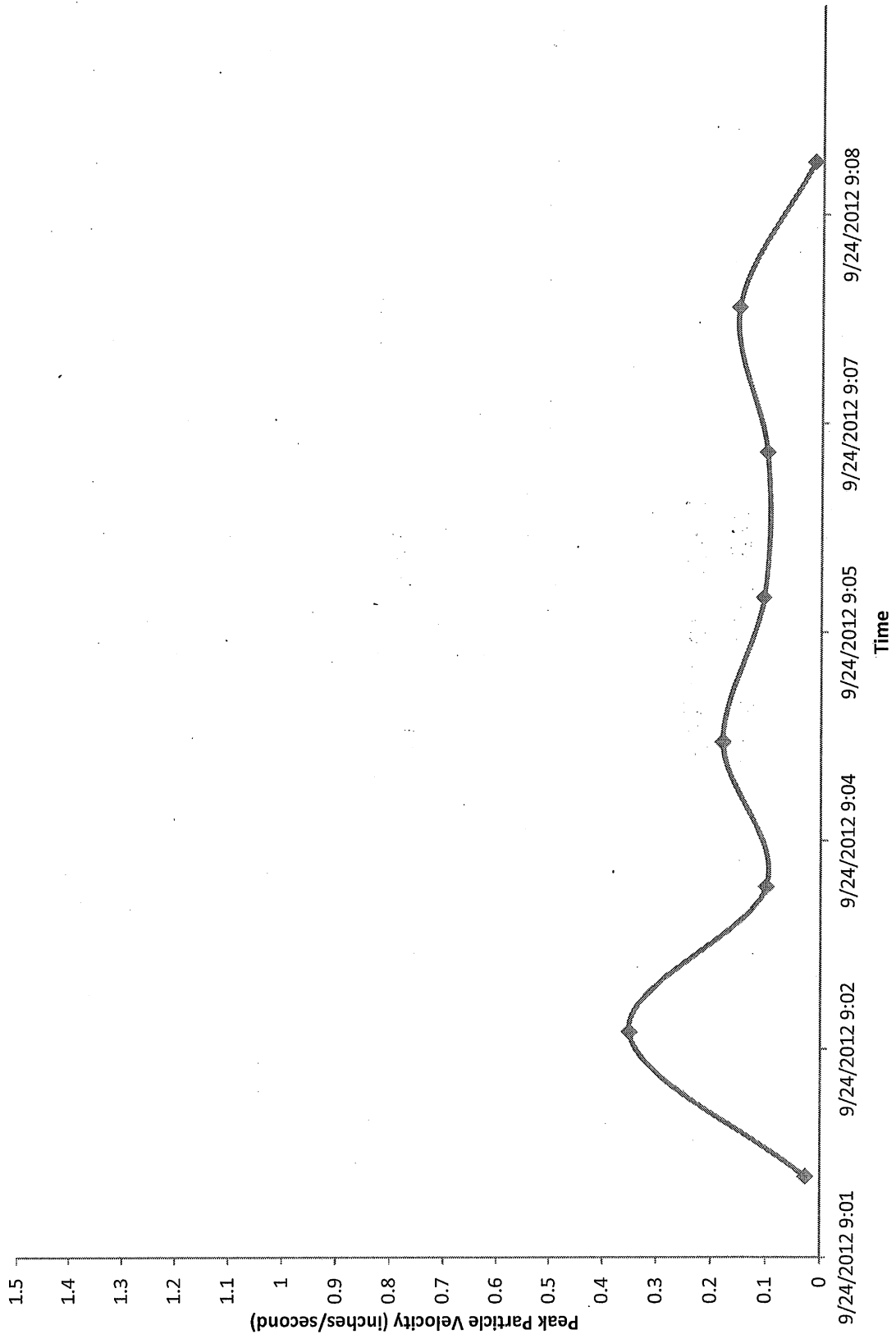
**Soldier Pile NW-4
Driven 9/24/2012**



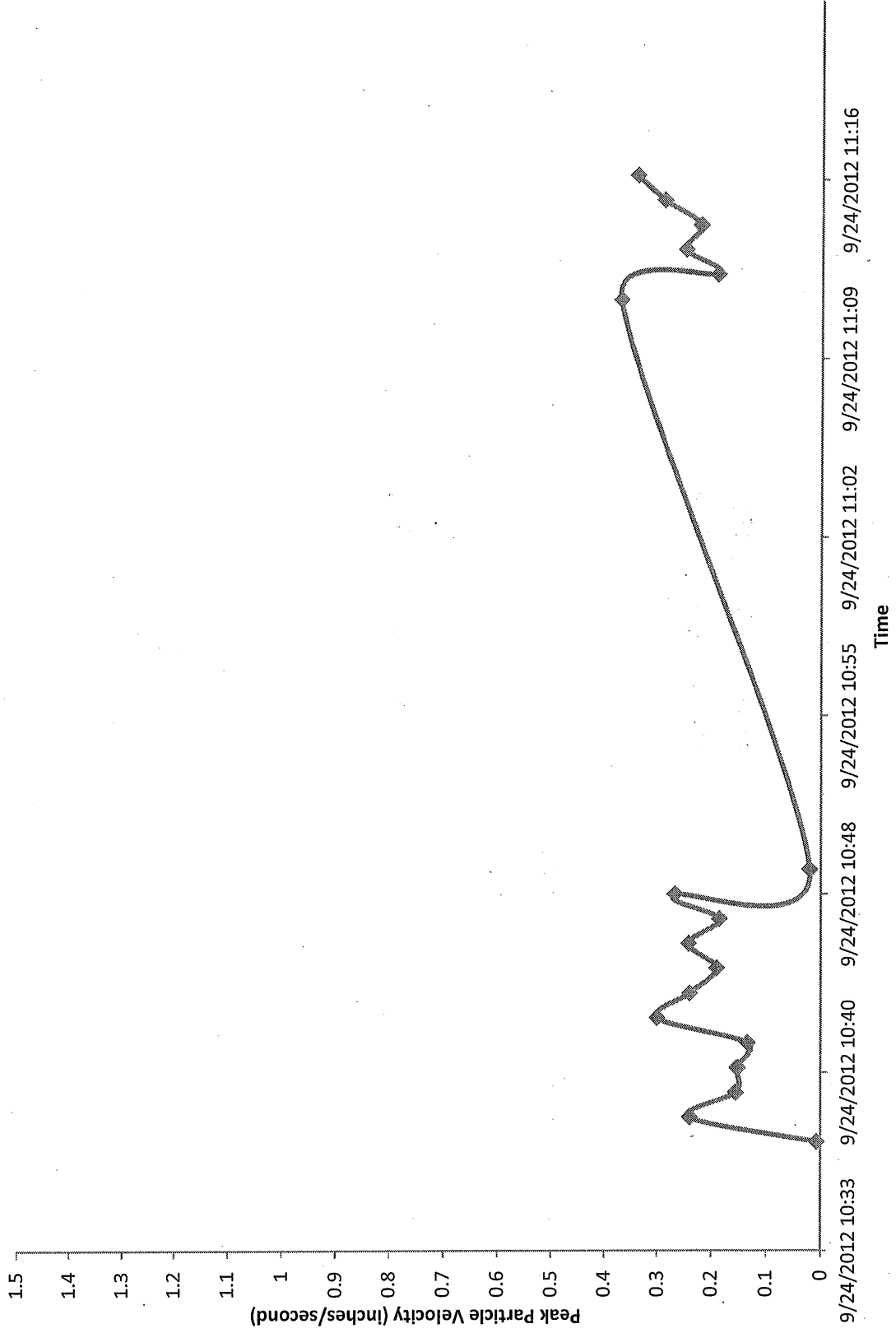
**Soldier Pile NW-6
Driven 9/24/2012**



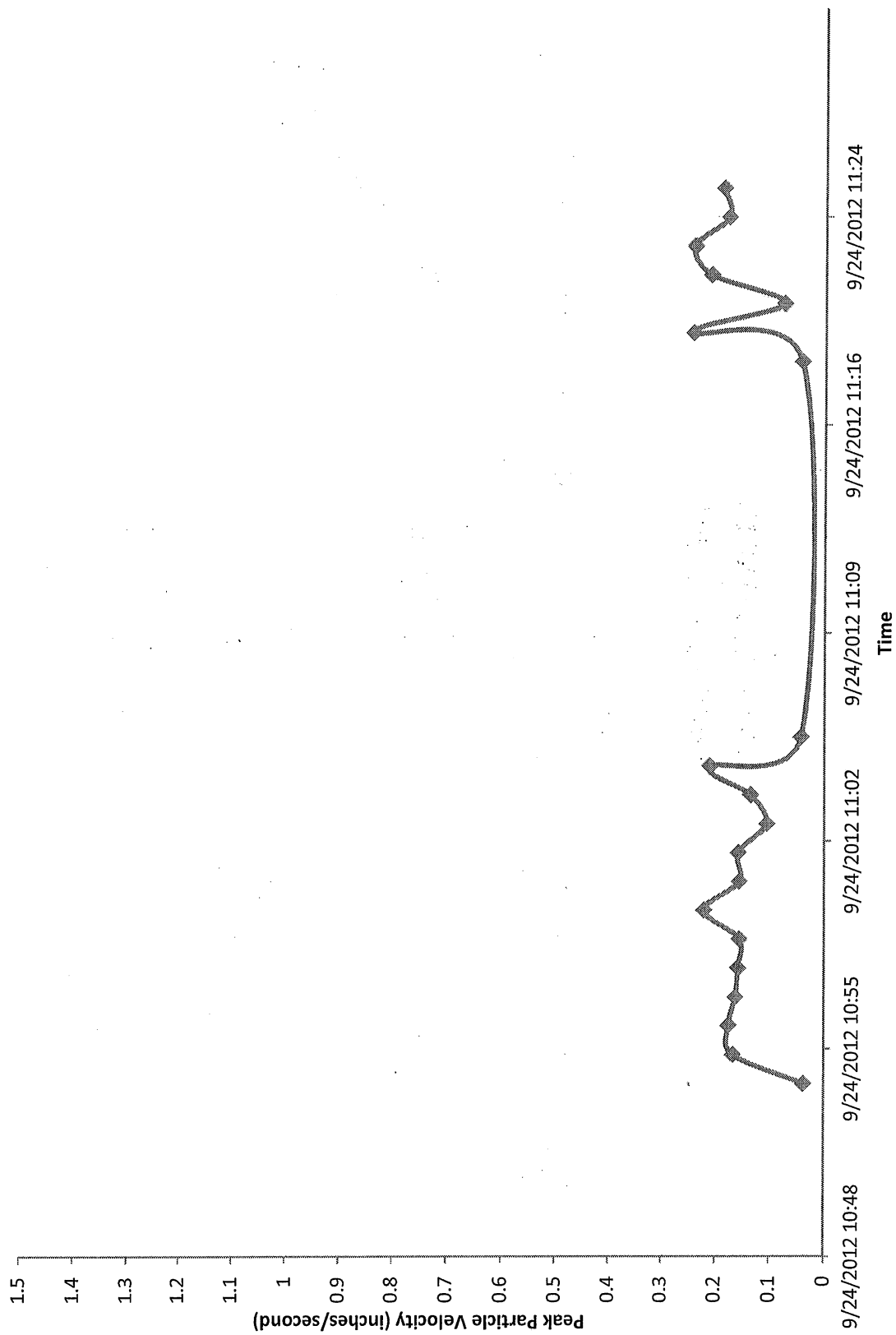
**Soldier Pile NW-8
Driven 9/24/2012**



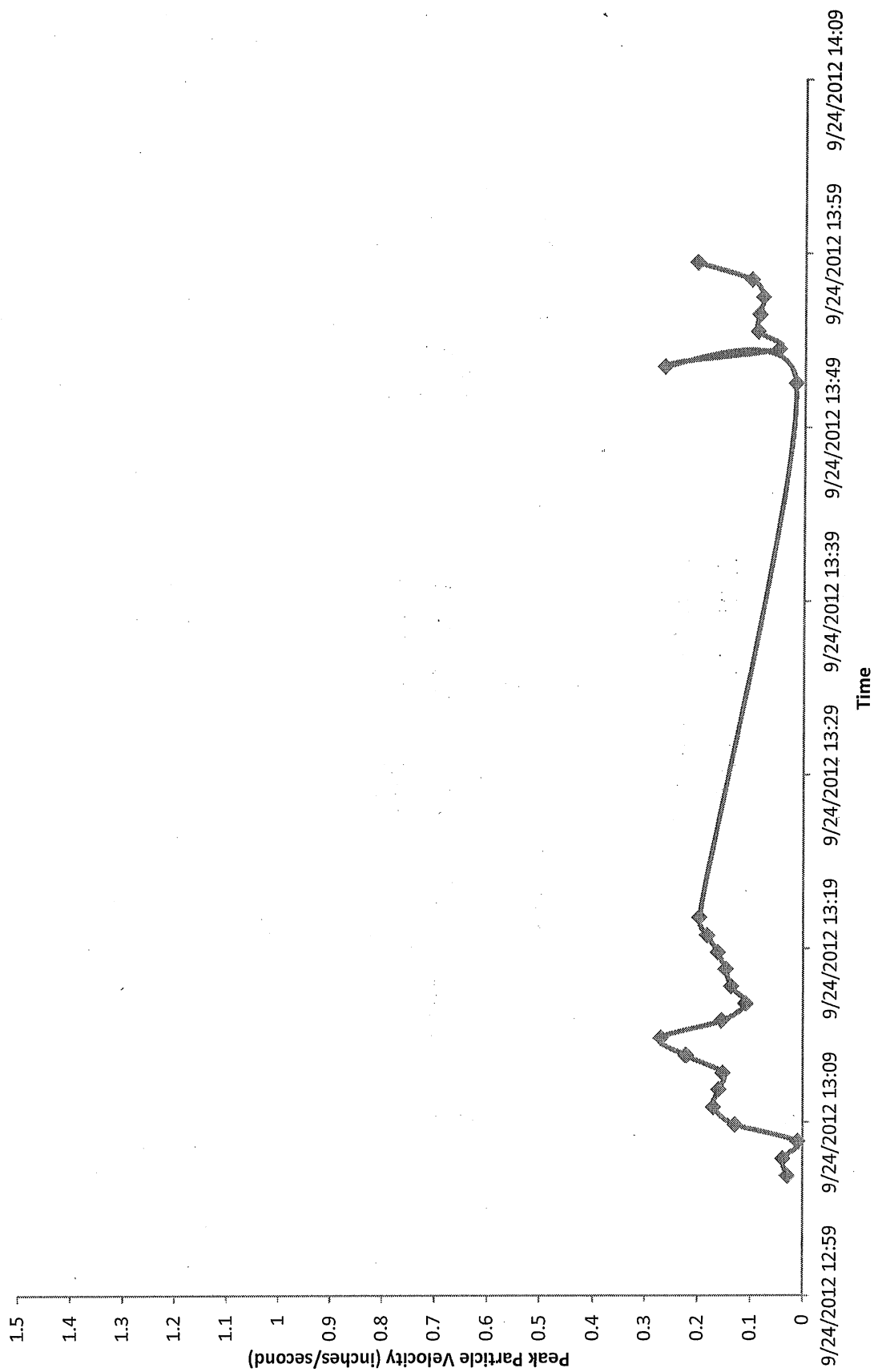
**Soldier Pile NW-5
Driven 9/24/2012**



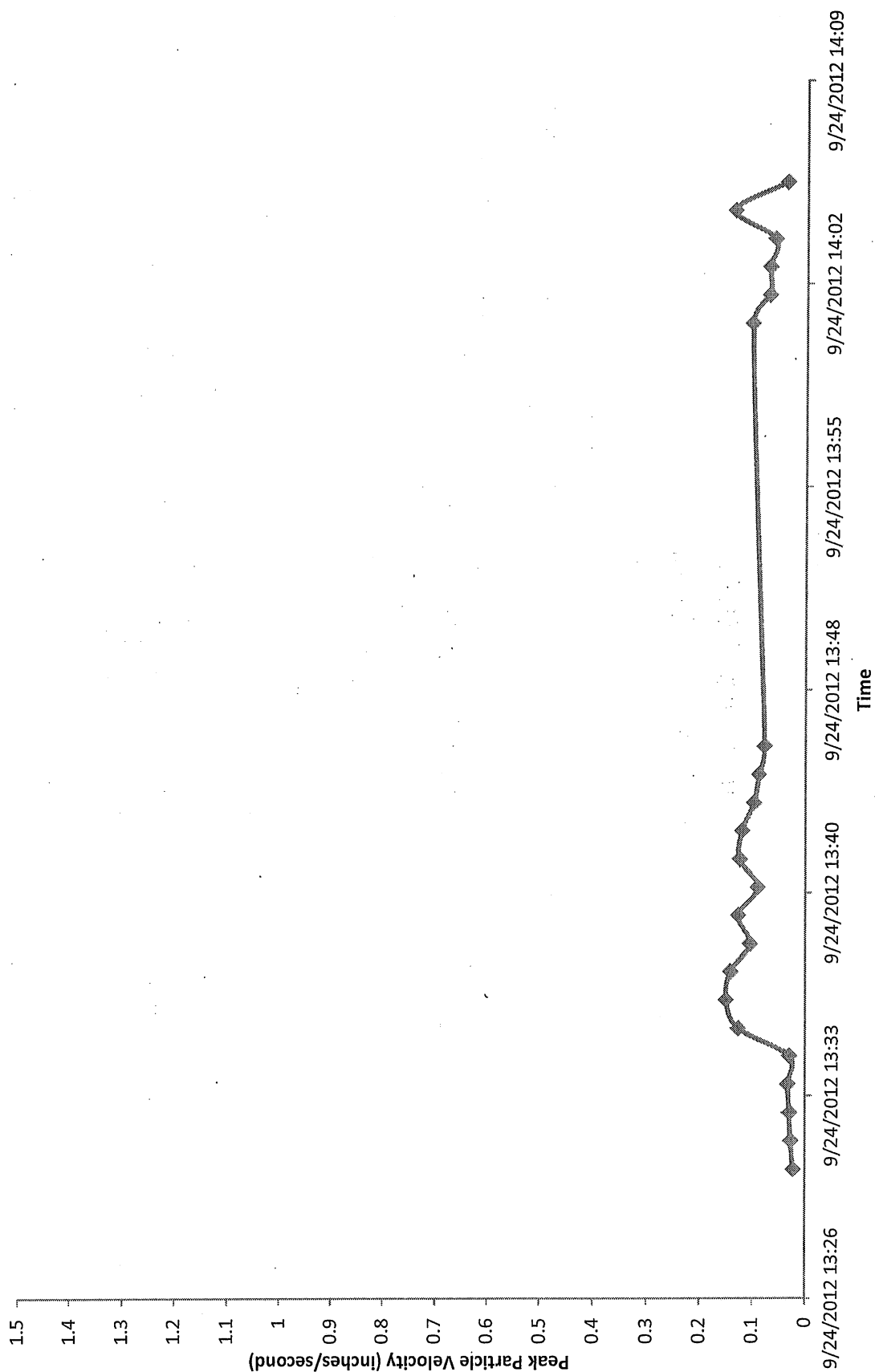
**Soldier Pile NW-7
Driven 9/24/2012**



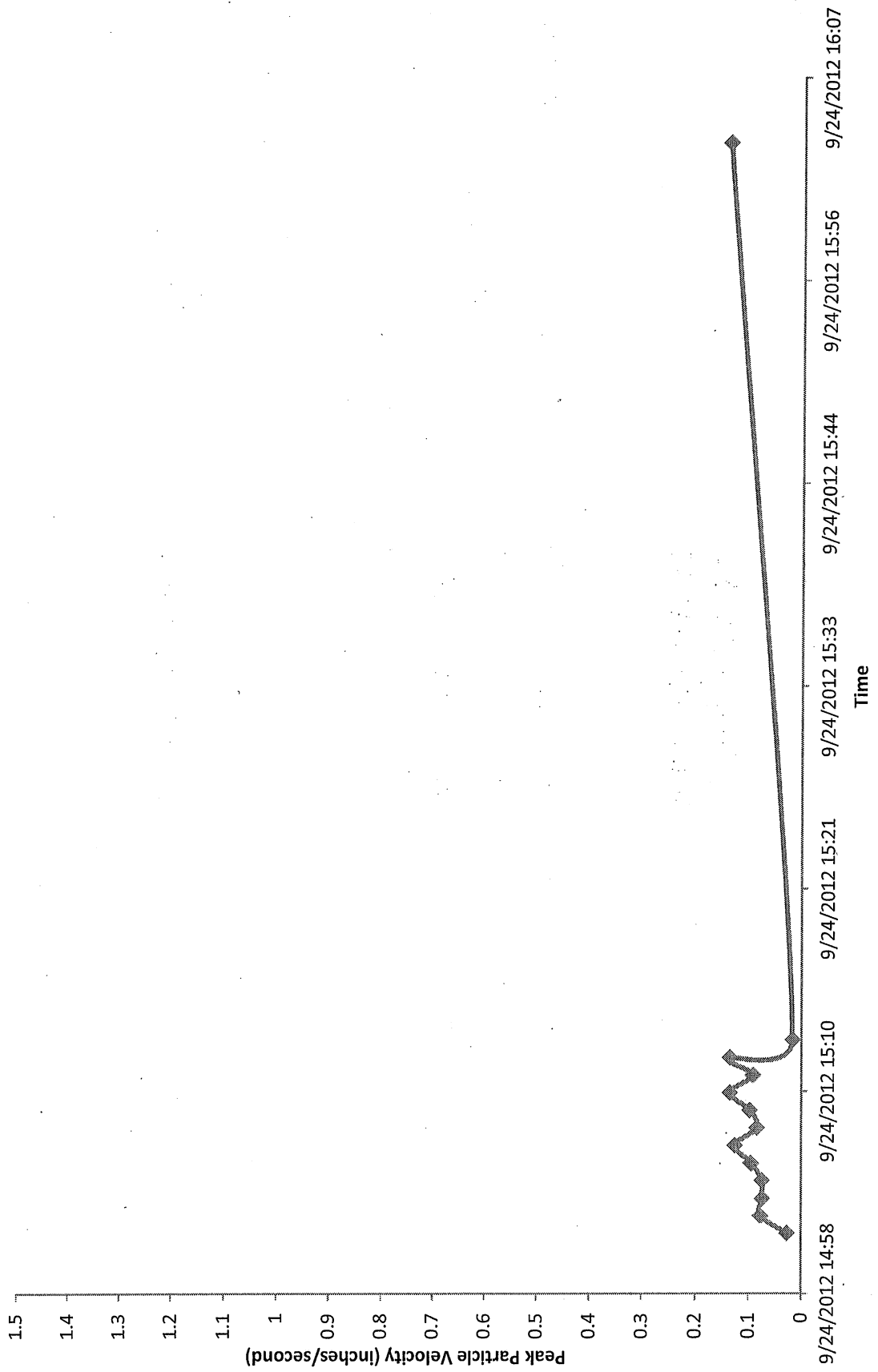
**Soldier Pile NW-9
Driven 9/24/2012**



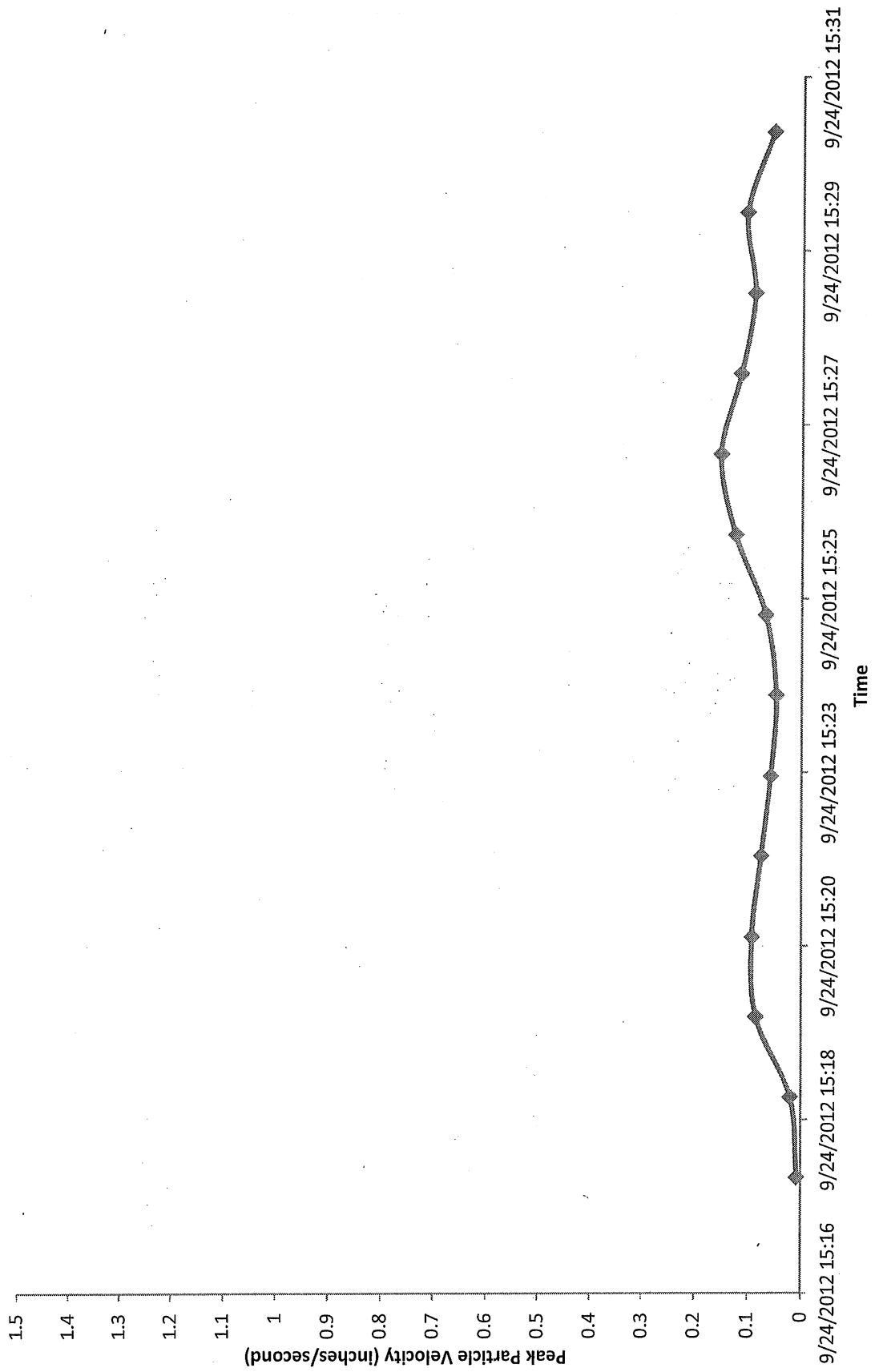
**Soldier Pile NW-10
Driven 9/24/2012**



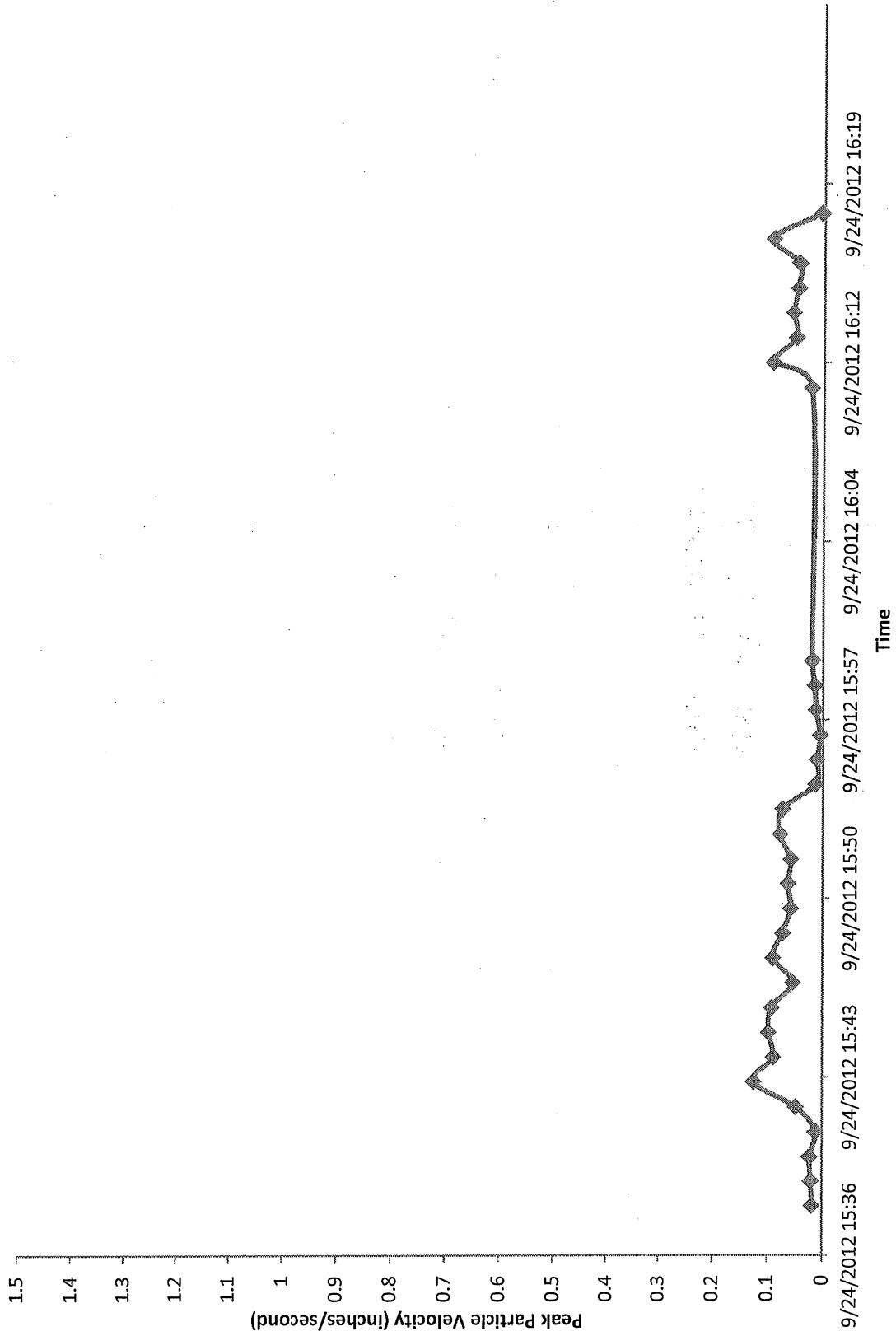
**Soldier Pile NW-11
Driven 9/24/2012**



**Soldier Pile NW-12
Driven 9/24/2012**

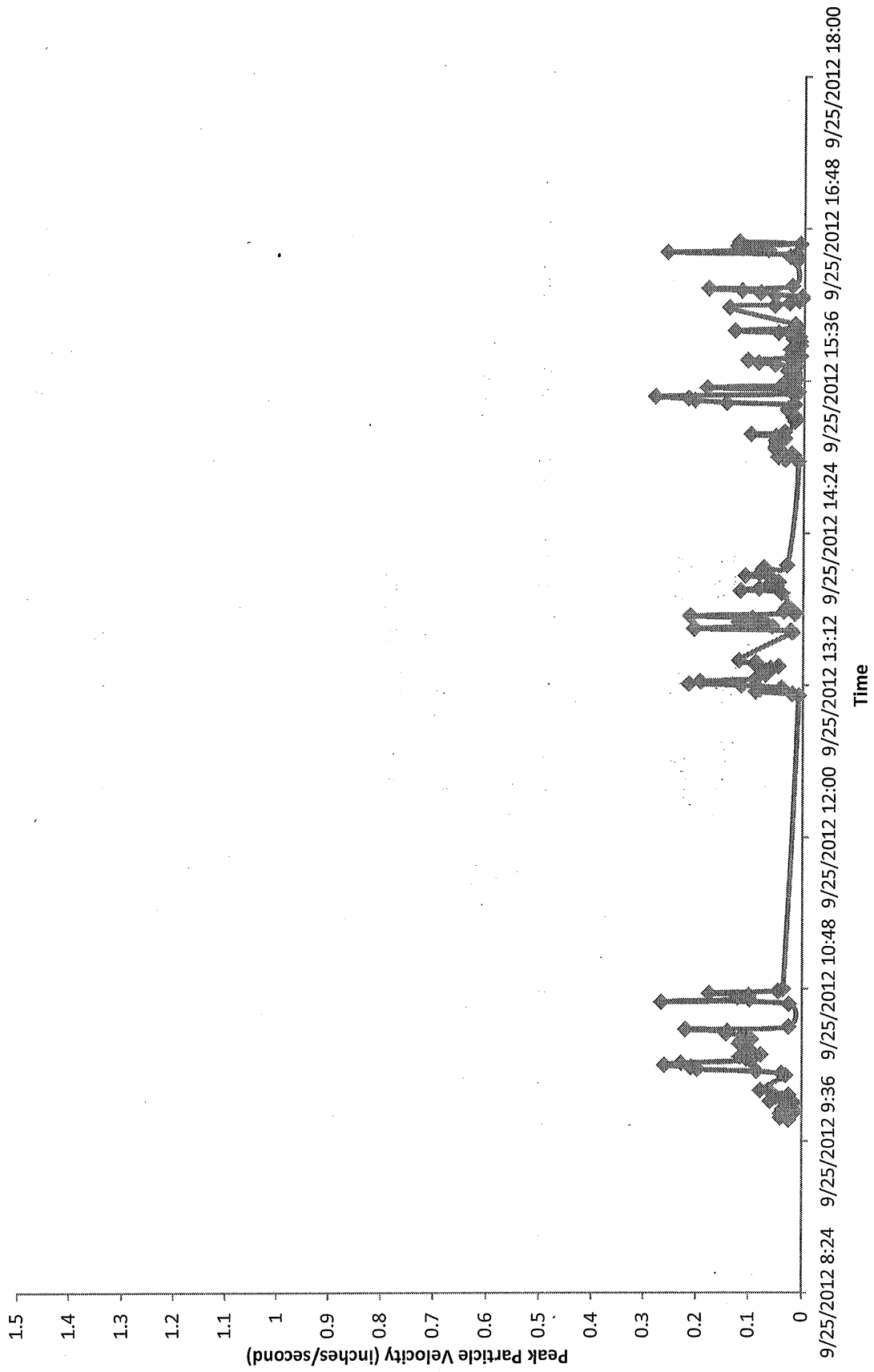


**Soldier Pile NW-13
Driven 9/24/2012**

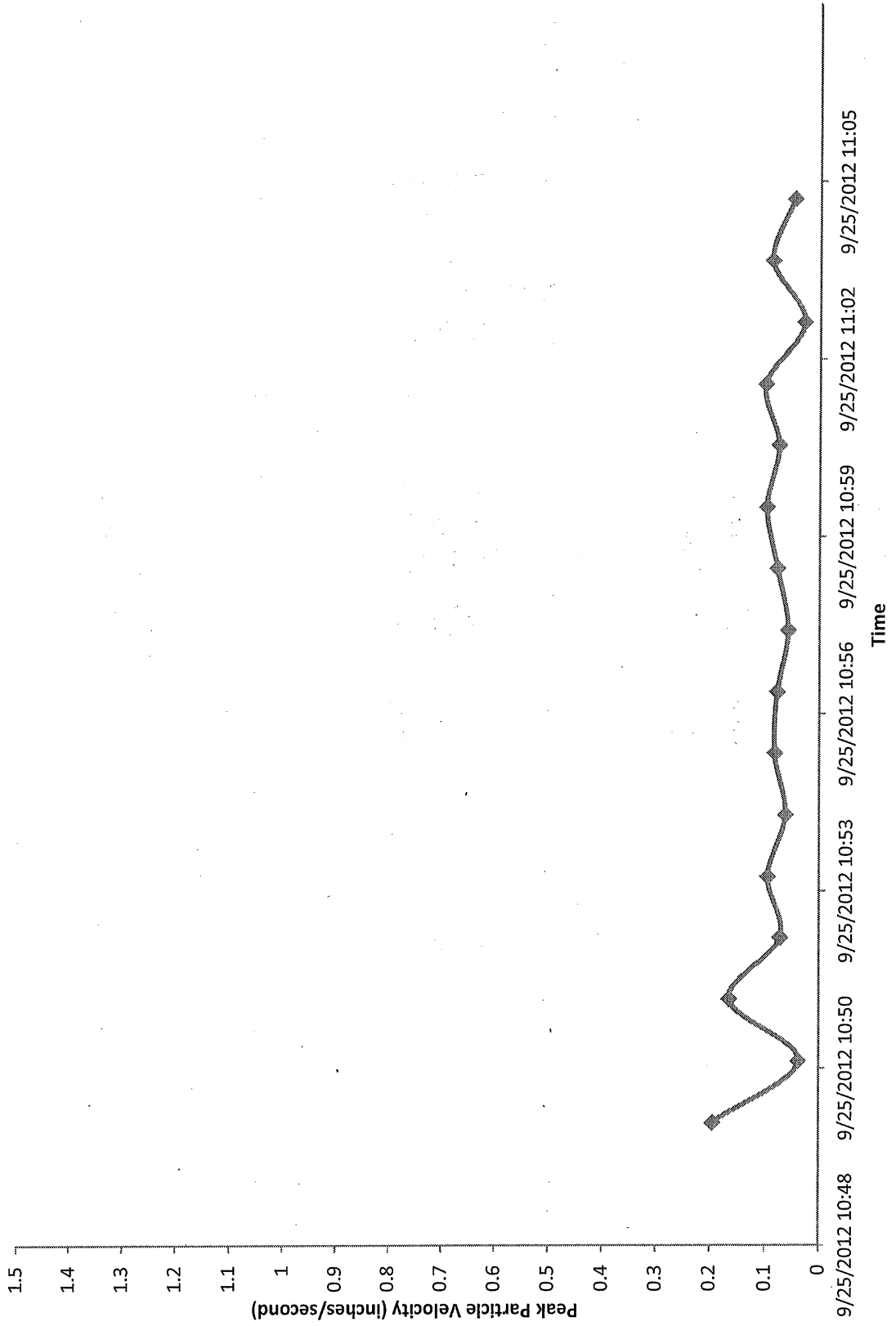


12/15

**Soldier Pile NW-14
Driven 9/25/2012**

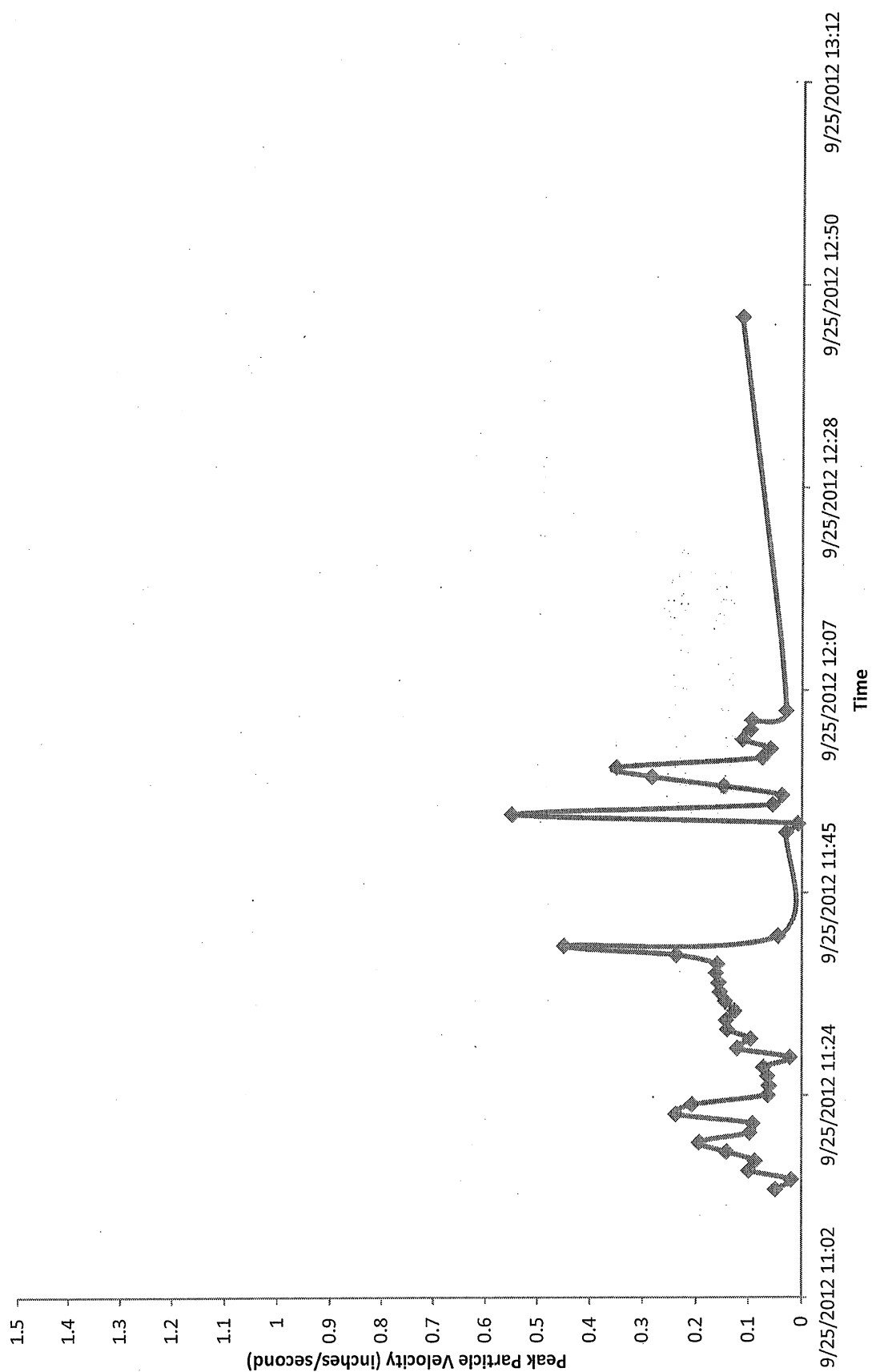


**Soldier Pile NW-15
Driven 9/25/2012**



14
15

**Soldier Pile NW-16
Driven 9/25/2012**



October 1, 2012

Mr. Martin Folan
Sevenson Environmental Services

Reference: Vibration Monitoring
Vibratory Driven Soldier Pile Installation
Illinois Route 59 over Kess Creek
West Chicago, Illinois
Wang No. 920-02-01

Dear Mr. Folan:

The results of the vibration monitoring data for the above referenced project are summarized in the table below. The table includes data from 9/26/2012 and 9/27/2012. The vibration data show peak particle velocities greater than the specified threshold of 1.0 inches per second at various intervals.

Table 1: Summary of Vibration Data

Soldier Pile ID	Start Time	End Time	Length Driven (feet)	Peak Particle Velocity (in/sec)
SW-1, 9/26/2012	10:26 AM	12:45 PM	39	0.89
SW-2, 9/26/2012	2:01 PM	4:07 PM	39	1.28
SW-3, 9/26/2012	10:42 AM	12:55 PM	39	1.28
SW-4, 9/26/2012	2:26 PM	2:38 PM	24	1.21
SW-5, 9/26/2012	4:10 PM	4:34 PM	39	0.81
SW-6, 9/26/2012	2:40 PM	3:04 PM	40	0.85
SW-7, 9/26/2012	10:59 AM	1:07 PM	37	0.49
SW-8, 9/26/2012	11:14 AM	1:18 PM	38	0.38
SW-9, 9/26/2012	11:37 AM	1:28 PM	39	0.38

SE-1, 9/27/2012	12:35 PM	1:20 PM	20	1.28
SE-2, 9/27/2012	11:31 AM	11:46 AM	40	1.08
SE-3, 9/27/2012	9:57 AM	10:26 AM	36	0.60
SE-4, 9/27/2012	10:39 AM	11:25 AM	40	0.90
SE-5, 9/27/2012	9:41 AM	9:56 AM	36	0.54

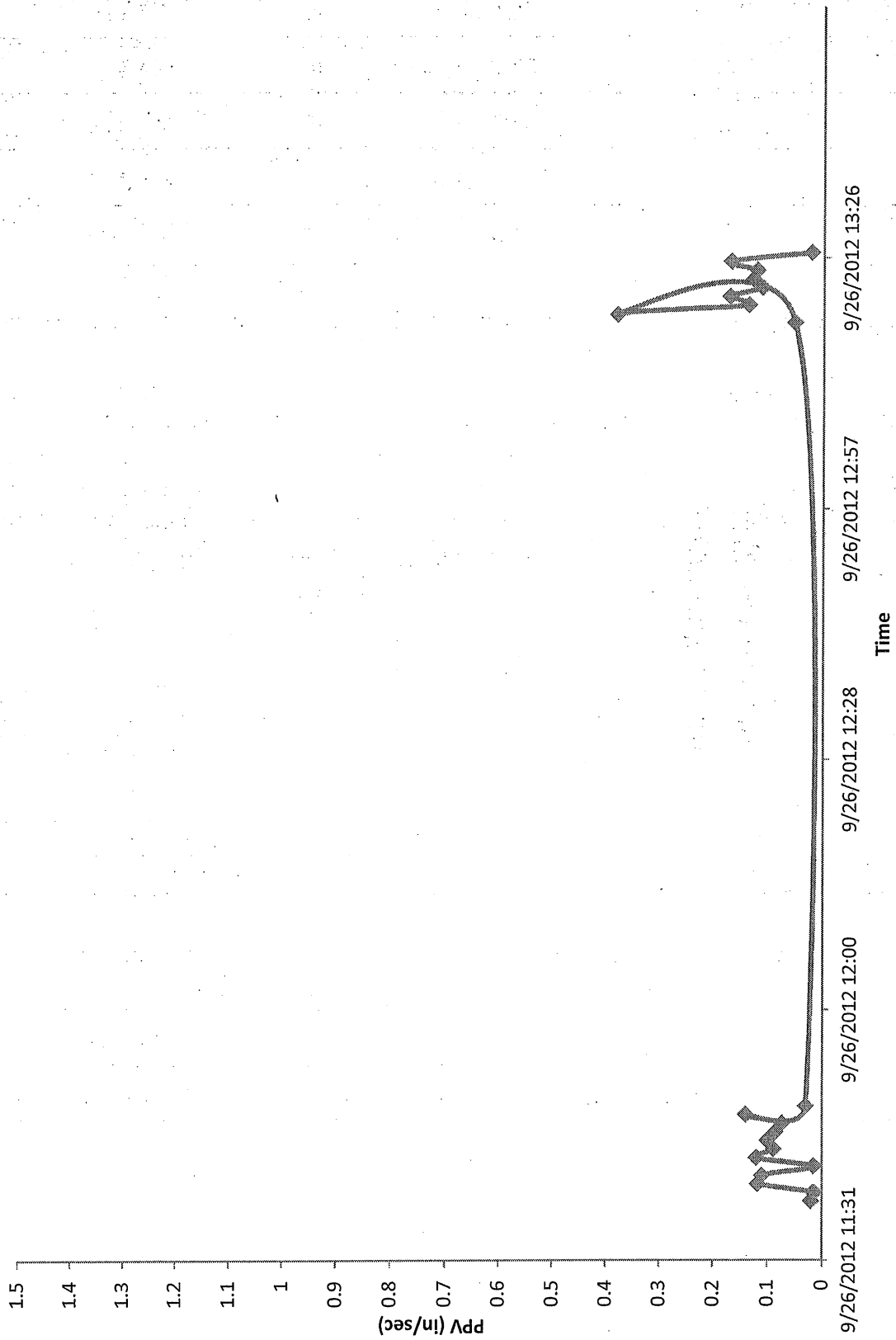
It is a pleasure to assist Sevenson Environmental Services in this phase of the project. Please contact us if there are any questions or concerns.

Respectfully Submitted,
WANG ENGINEERING, INC.

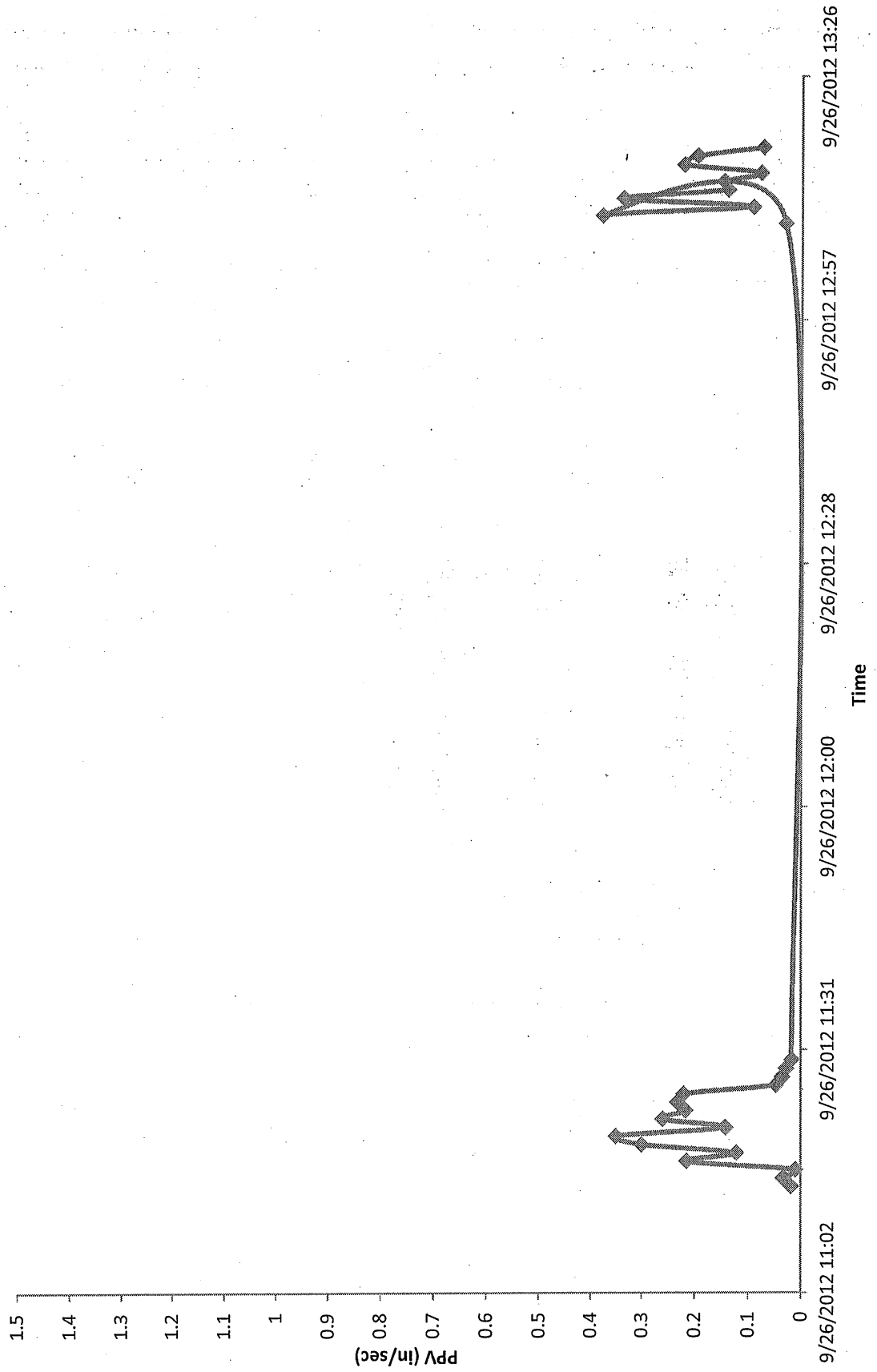
Mickey L. Snider, P.E.
Senior Geotechnical Engineer

Corina T. Farez, P.E., P.G.
Vice President

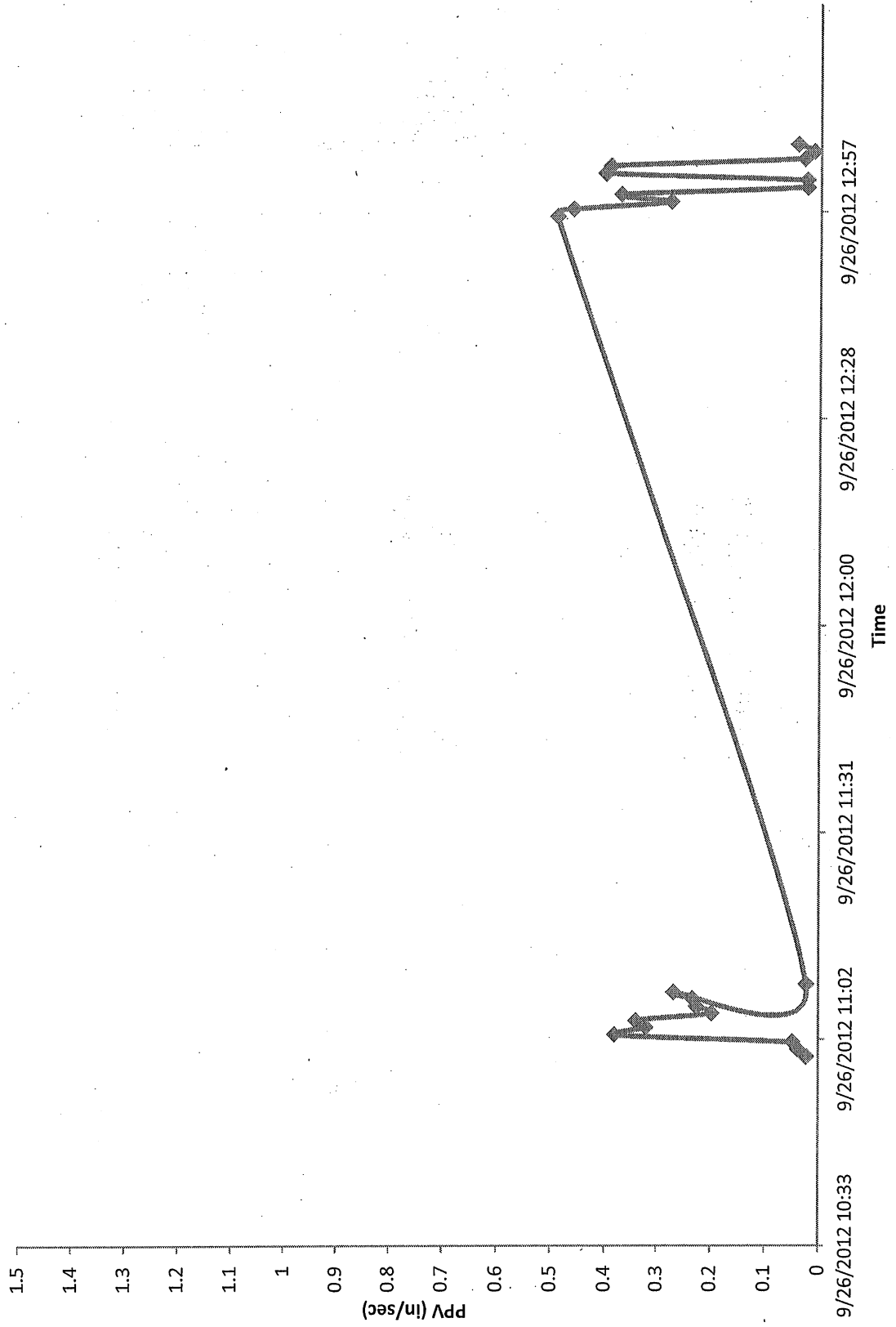
**Soldier Pile SW-9
Driven 9/26/2012**



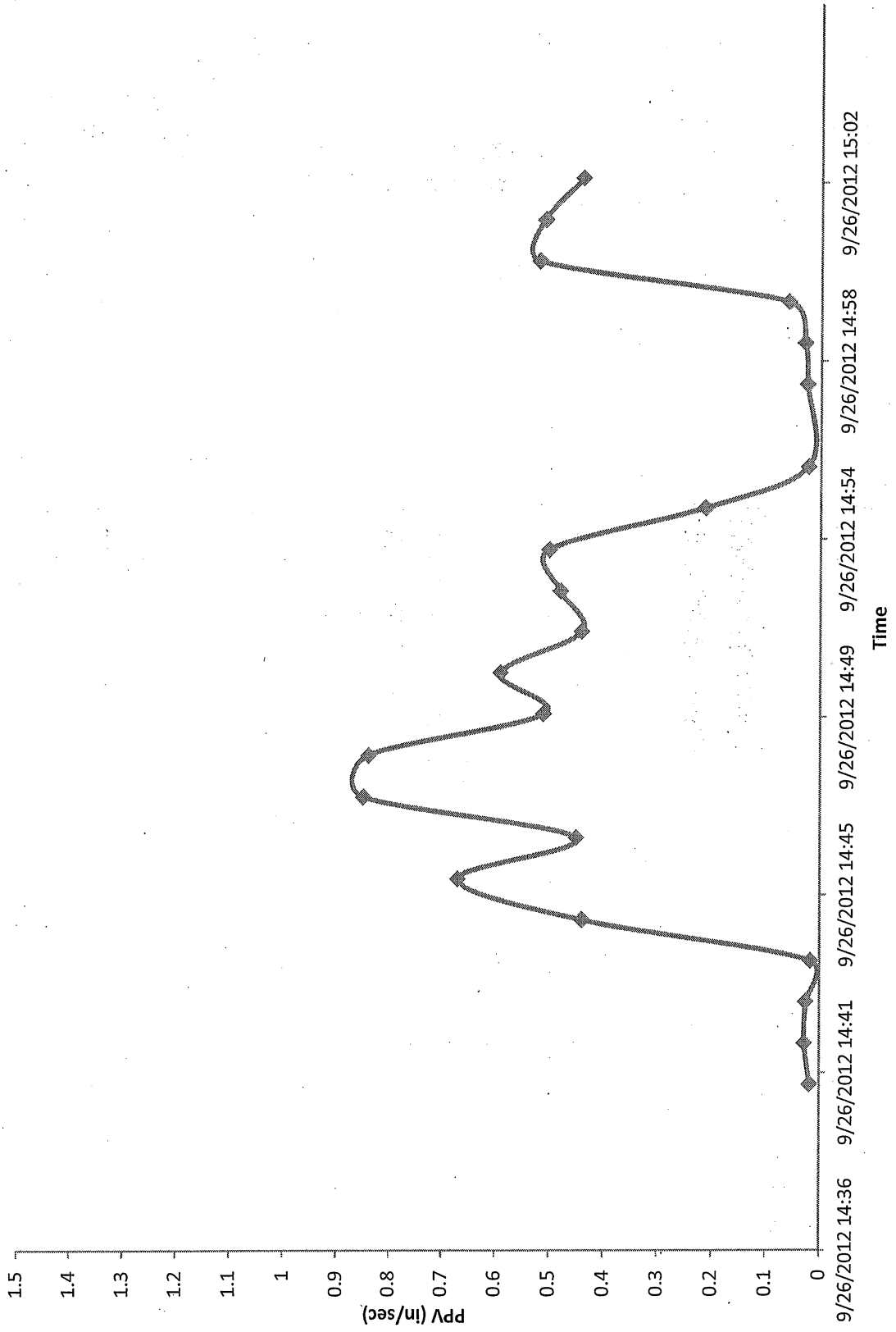
**Soldier Pile SW-8
Driven 9/26/2012**



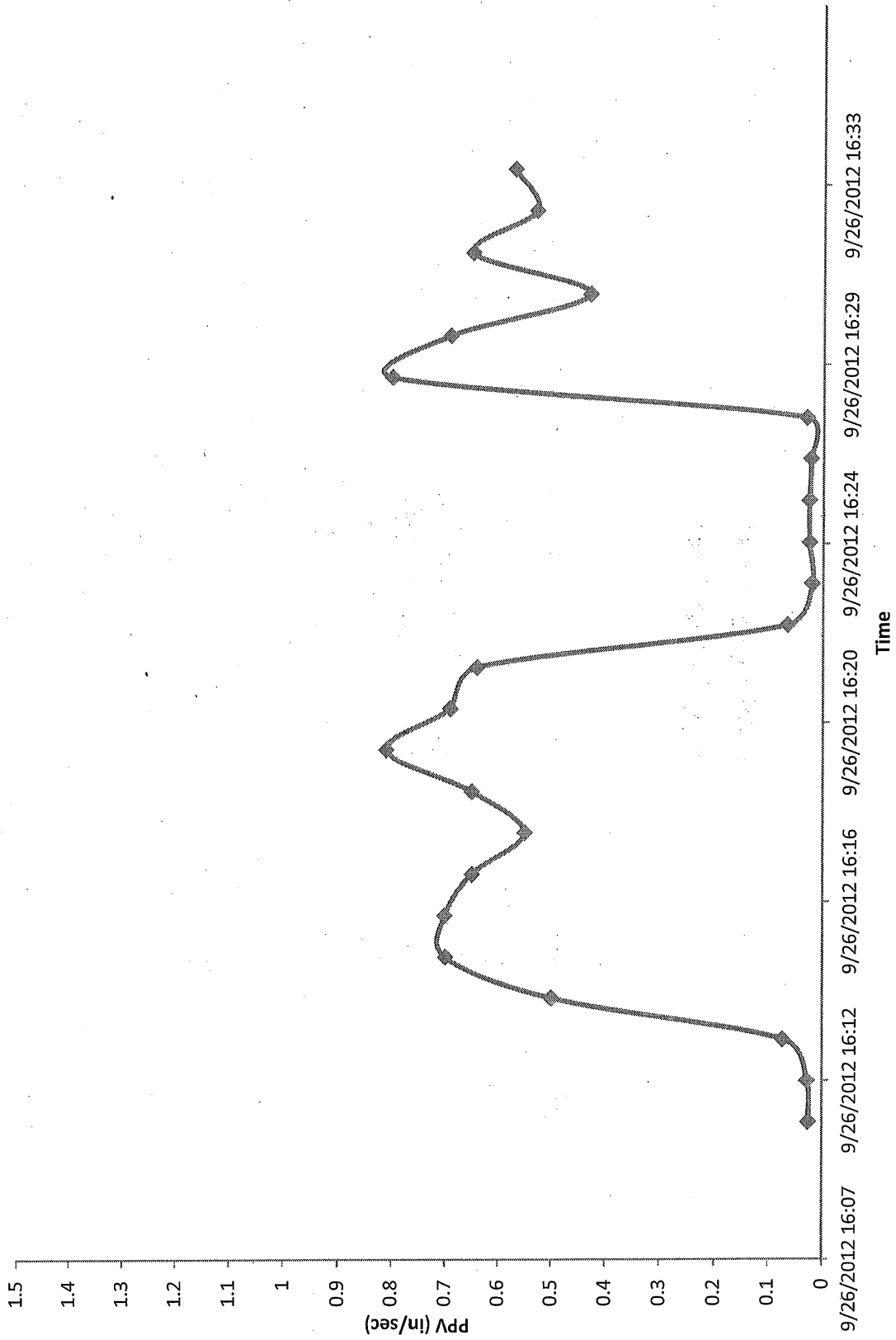
**Soldier Pile SW-7
Driven 9/26/2012**



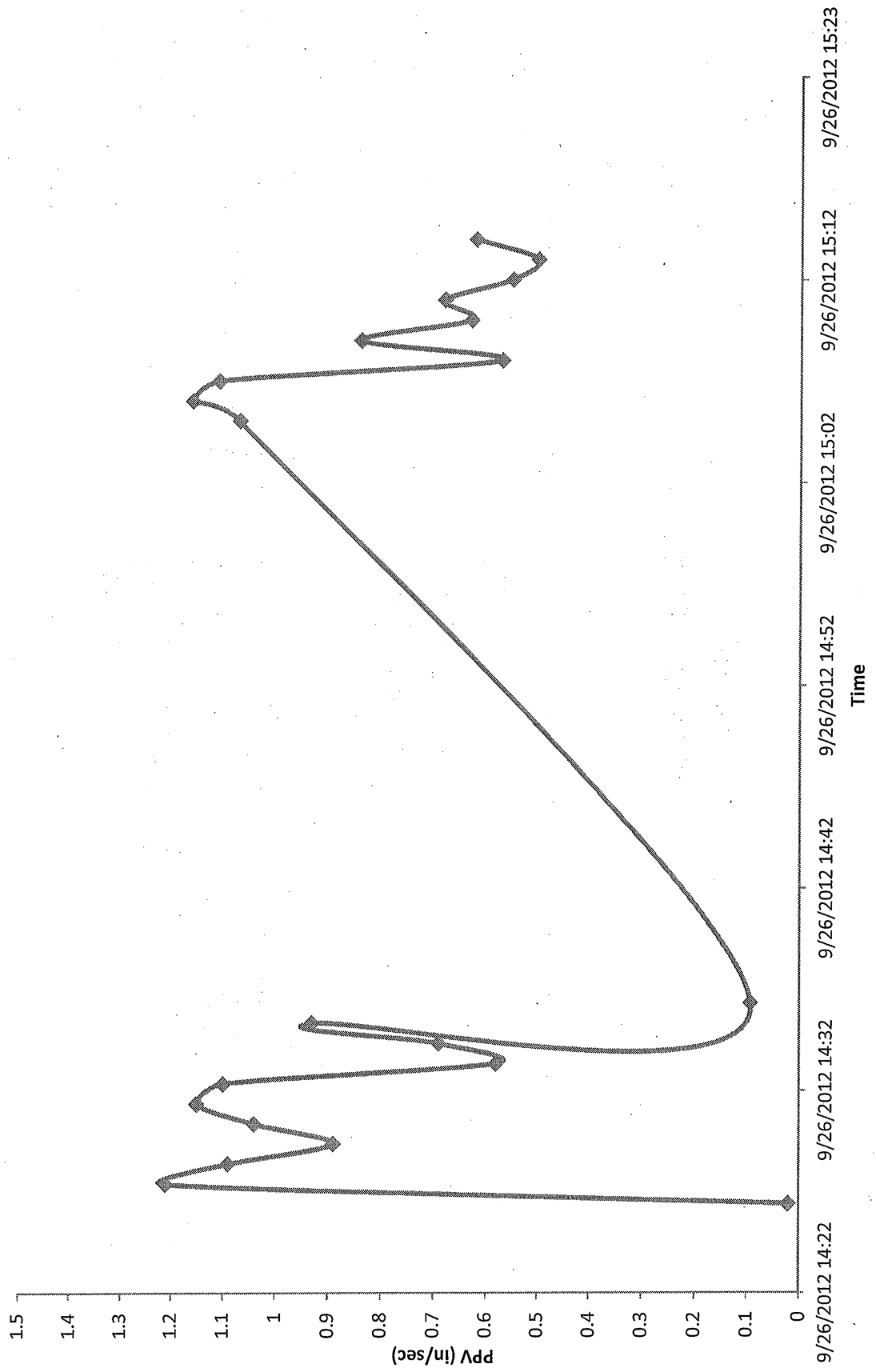
**Soldier Pile SW-6
Driven 9/26/2012**



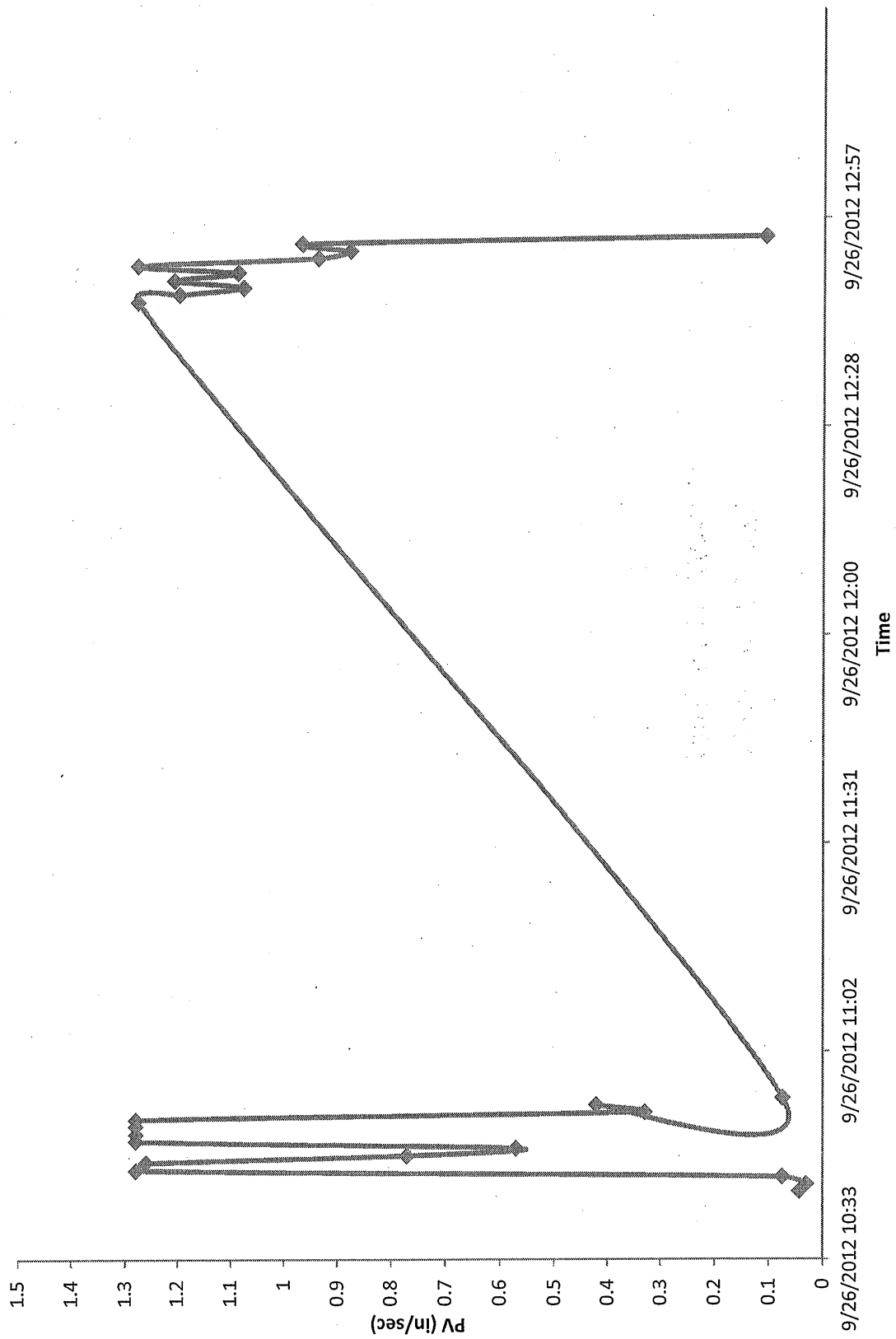
**Soldier Pile SW-5
Driven 9/26/2012**



**Soldier Pile SW-4
Driven 9/26/2012**



**Soldier Pile SW-3
Driven 9/26/2012**

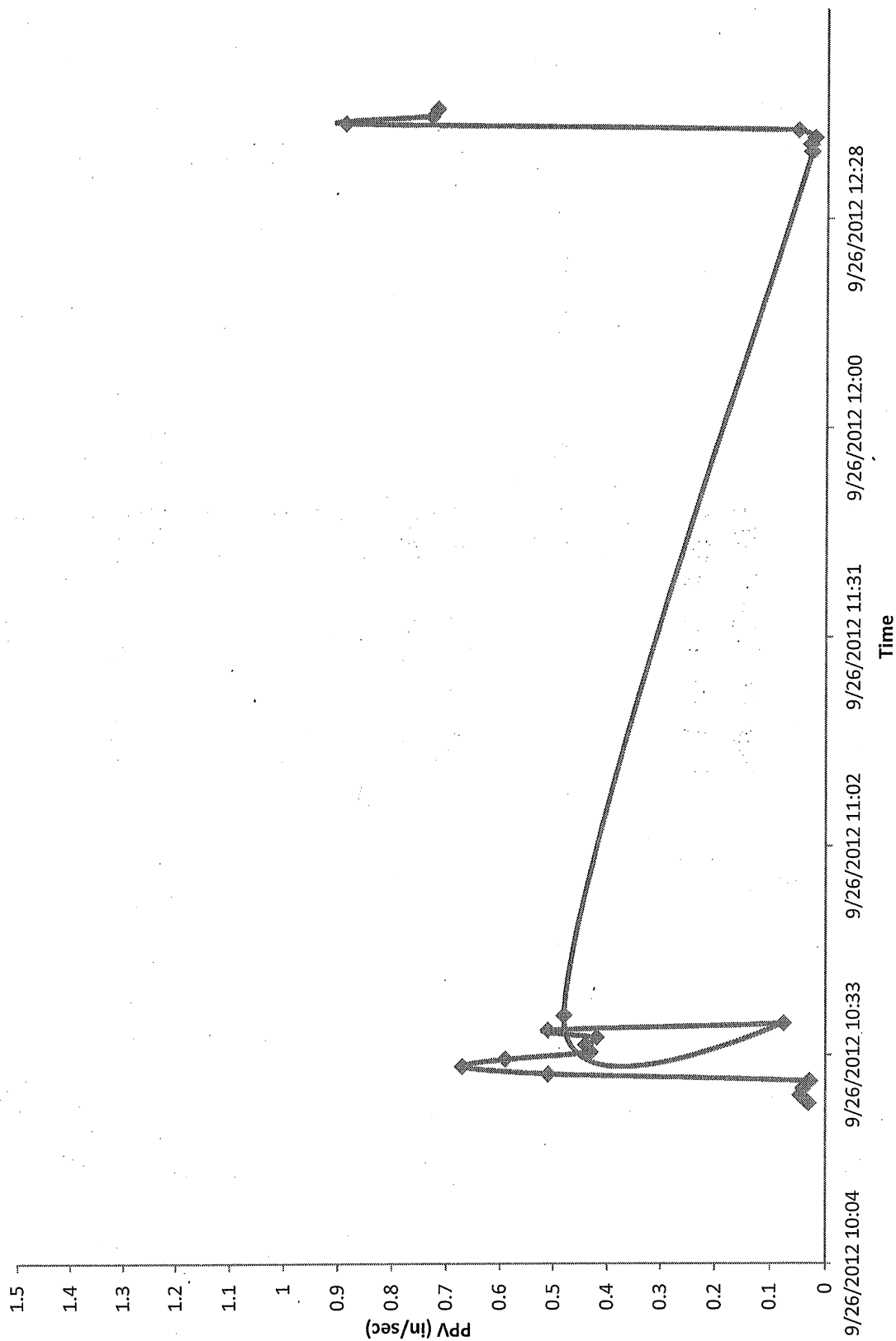


The graph displays PPV (in/sec) on the y-axis (0 to 1.5) against Time on the x-axis (9/26/2012 13:55 to 9/26/2012 16:19). The data series are represented by lines with diamond markers. Most series remain near 0.05 in/sec, with one series showing a sharp increase to approximately 1.25 in/sec around 14:52.

Time	Series 1 (Low)	Series 2 (Low)	Series 3 (Low)	Series 4 (Low)	Series 5 (High)
9/26/2012 13:55	0.05	0.05	0.05	0.05	0.05
9/26/2012 14:24	0.05	0.05	0.05	0.05	0.05
9/26/2012 14:52	0.05	0.05	0.05	0.05	1.25
9/26/2012 15:21	0.05	0.05	0.05	0.05	1.25
9/26/2012 15:50	0.05	0.05	0.05	0.05	1.25
9/26/2012 16:19	0.05	0.05	0.05	0.05	1.25

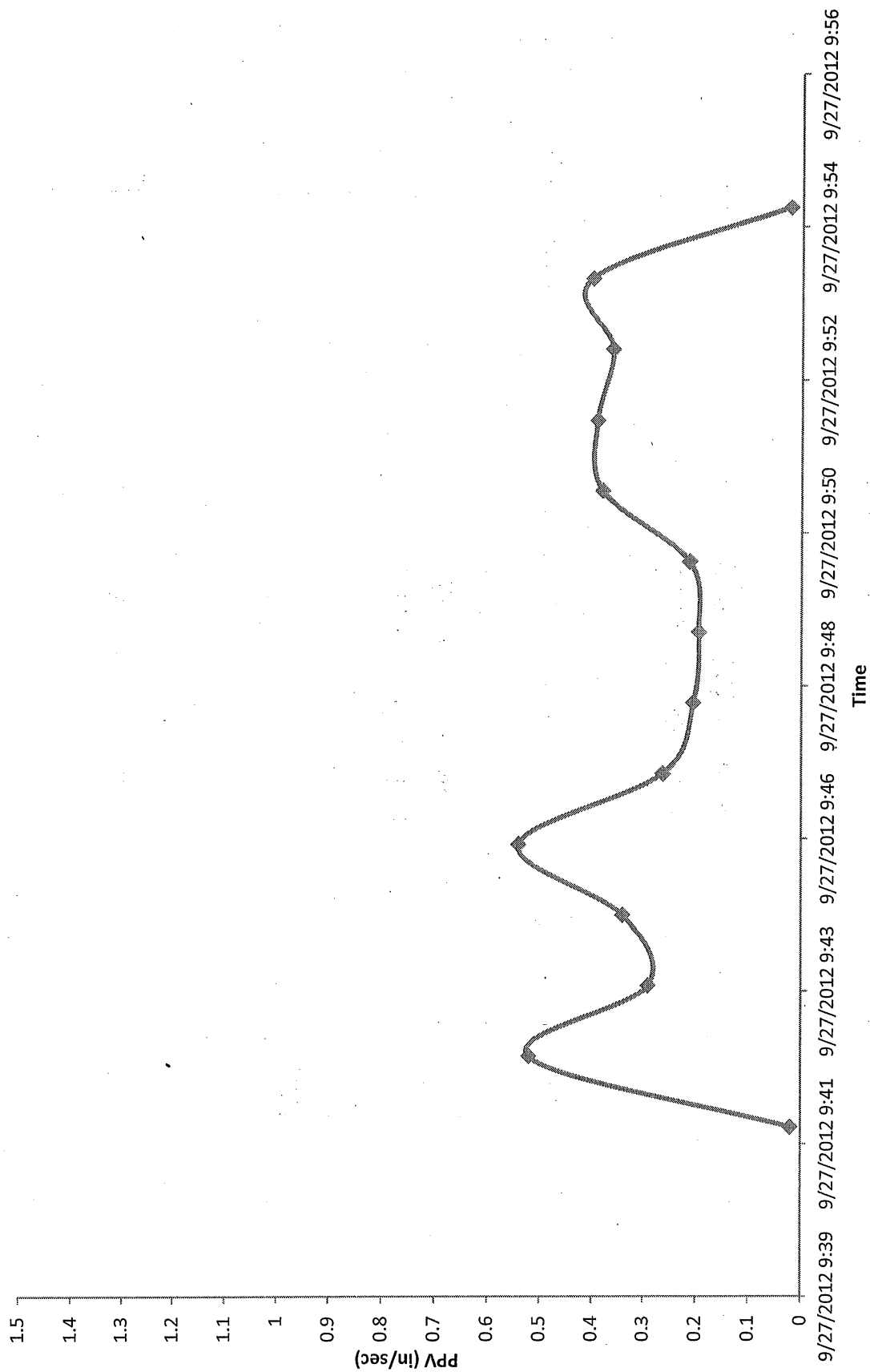
10/16

**Soldier Pile SW-1
Driven 9/26/2012**

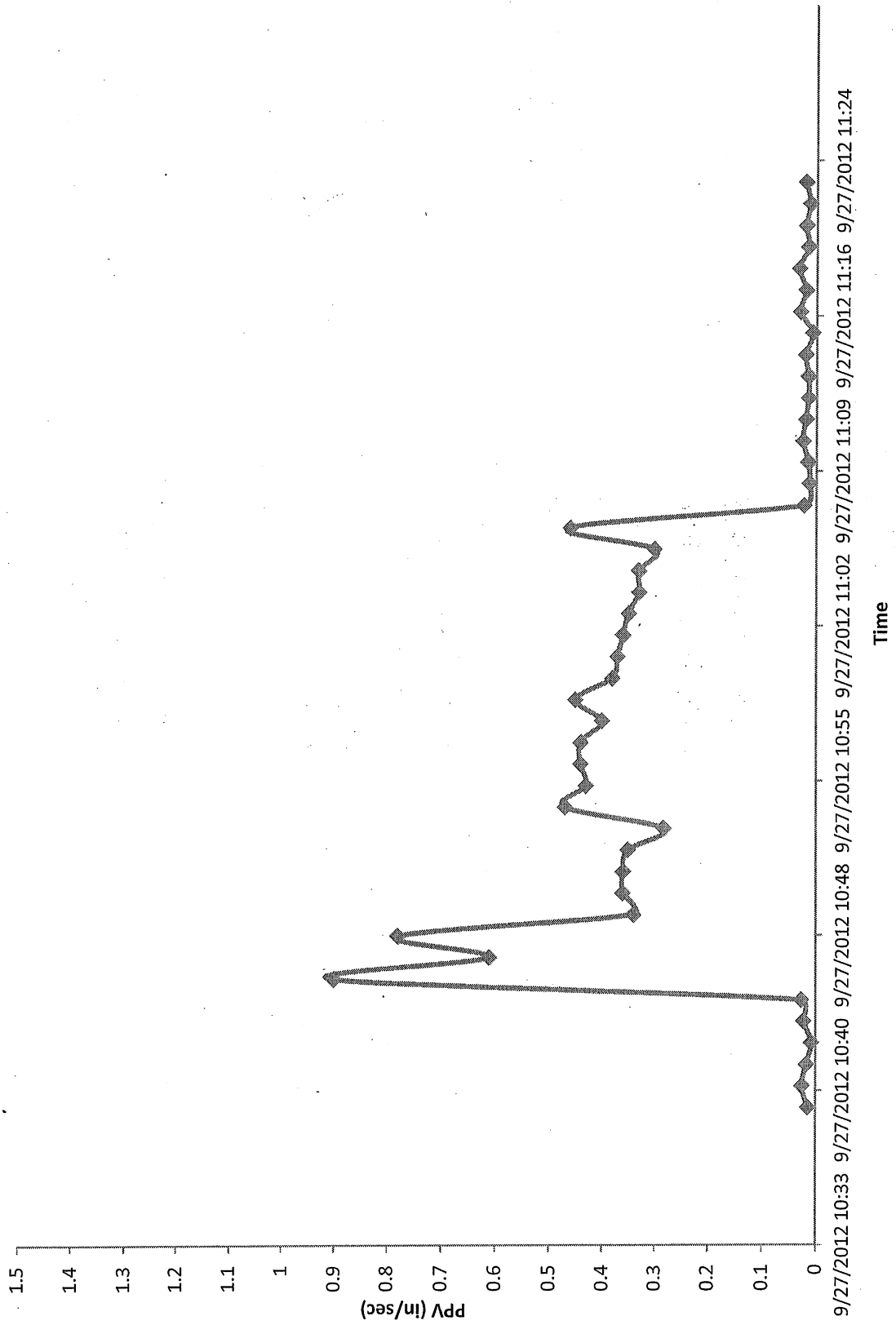


11/16

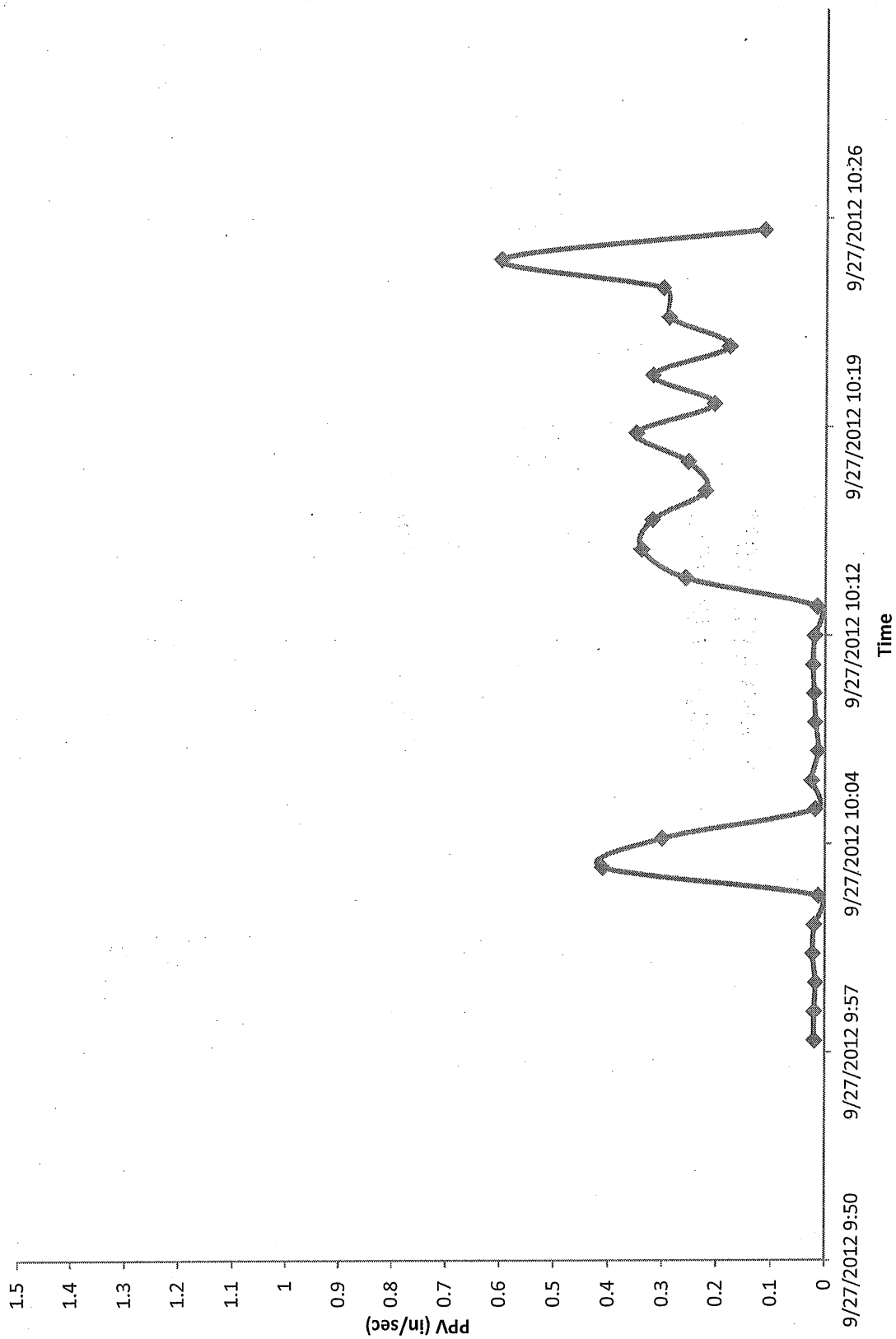
**Soldier Pile SE-5
Driven 9/27/2012**



**Soldier Pile SE-4
Driven 9/27/2012**



**Soldier Pile SE-3
Driven 9/27/2012**



14/6

The graph displays the Peak-to-Peak Velocity (PPV) in inches per second (in/sec) over time. The y-axis ranges from 0 to 1.5 in/sec with increments of 0.1. The x-axis shows time from 9/27/2012 11:31 to 11:45. The data points are connected by a line, and each point is marked with a diamond.

Time	PPV (in/sec)
9/27/2012 11:31:00	1.05
9/27/2012 11:31:30	1.08
9/27/2012 11:32:00	1.05
9/27/2012 11:32:30	0.95
9/27/2012 11:33:00	0.92
9/27/2012 11:33:30	0.88
9/27/2012 11:34:00	0.85
9/27/2012 11:34:30	0.82
9/27/2012 11:35:00	0.80
9/27/2012 11:35:30	0.78
9/27/2012 11:36:00	0.75
9/27/2012 11:36:30	0.72
9/27/2012 11:37:00	0.70
9/27/2012 11:37:30	0.68
9/27/2012 11:38:00	0.65
9/27/2012 11:38:30	0.62
9/27/2012 11:39:00	0.60
9/27/2012 11:39:30	0.58
9/27/2012 11:40:00	0.55
9/27/2012 11:40:30	0.53
9/27/2012 11:41:00	0.52
9/27/2012 11:41:30	0.51
9/27/2012 11:42:00	0.50
9/27/2012 11:42:30	0.49
9/27/2012 11:43:00	0.48
9/27/2012 11:43:30	0.47
9/27/2012 11:44:00	0.46
9/27/2012 11:44:30	0.45
9/27/2012 11:45:00	0.44

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**Soldier Pile SE-1
Driven 9/27/2012**

